USER'S GUIDE FOR GloED VERSION 1.0
THE GLOBAL EMISSIONS DATABASE

By:

Janice E. Stafford, Luis A. Bravo, and Robert L. Bass
Radian Corporation
Post Office Box 13000
Research Triangle Park, North Carolina 27709

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Project Officer:
Lee L. Beck
U.S. Environmental Protection Agency
National Risk Management Research Laboratory
Air Pollution Prevention and Control Division
Research Triangle Park, North Carolina 27711

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ABSTRACT

The EPA Office of Research and Development has developed a powerful software package called the Global Emissions Database (GloED). GloED is a user-friendly, menu-driven tool for storage and retrieval of emissions factors and activity data on a country-specific basis. Data can be selected from databases resident within GloED and/or supplied by the user. The data are used to construct emissions scenarios for the countries and sources selected. References are linked to the data to ensure clear data pedigrees. The scenario outputs can be displayed on thematic global maps or other graphic outputs such as pie or bar charts. In addition, data files can be exported as Lotus 1-2-3, dBase, or ASCII files, and graphics can be saved as a .PCX file or exported to a printer. This report describes GloED and how it works. Computer diskettes (3.5 inch) are supplied with the report.

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DISCLAIMER

The Global Emissions Database (GloED) software system contains preliminary datasets solely for the testing of GloED software. Most of the data have not gone through a scientific peer-review process. Because of this, the data in GloED does not represent United States Environmental Protection Agency (U.S. EPA) data for greenhouse gases. It is distributed as a service for the use of individuals involved in the area of global emission inventories. The GloED software has been exhaustively tested and every effort has been made to minimize malfunctions. All known software defects have been corrected. Users are encouraged to use the form provided in Appendix H to report malfunctions or other anomalous behavior and to provide comments on the GloED software and database for corrections or enhancements in future releases. The software and documentation make occasional reference to commercial software packages. These references do not constitute U.S. EPA endorsement of these products.

CHAPTER 1

Welcome to the Global Emissions Database (GloED) System. The GloED is a database management system specifically designed to assist workers involved in the development and maintenance of global emission inventories of greenhouse gases. By using GloED a user can develop new global emission inventories and produce various type of reports, including graphical and text reports.

This chapter introduces the user to GloED and shows how to set up GloED on your computer. It comprises three sections that guide the user through the preliminaries of using the GloED software system.

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INTRODUCTION

This "Introduction" section explains what the Global Emissions Database (GloED) software system is and what it does. This introduction is followed by two sections: "Installing GloED" contains installation instructions, and "Getting Started" offers general directions on using GloED.

What is GloED?

GloED is a software system designed as a tool to generate estimates of global emissions by combining pollutant-specific emission factors with quantitative data on emission-producing activities for that source. GloED also serves as a repository for emissions data, activity data, and emission factors.

An **emission-producing activity** is a pollutant-generating process that occurs within a **sector** and within a **country**. For example, coal combustion is an emissions-producing activity--that is, some amount of carbon dioxide (CO_2) is emitted annually in the United States as a result of some quantifiable amount of coal combustion. Further, some amount of the total annual coal combustion in the United States occurs within the sector of energy and transformation. The amount of coal combusted in the energy and transformation sector within the United States is the activity defined in this example. GloED combines an emission factor for CO_2 from coal combustion with information about the amount of coal combusted for energy production (in the energy and transformation sector) in the United States to produce emission estimates for the particular sector associated with the emission factor and activity. (Note that "sector" is a group of emission sources associated with some industrial activity or biogenic activity and will be used interchangeably with the term "source category" throughout this user's guide.)

Data on emission-producing activities are hierarchically subdivided to the maximum extent that available information allows. For coal combustion, for example, data are available for the portion of coal combusted in the energy and transformation sector for public electricity generation. GloED can further subdivide public electricity generation to reflect the type of coal combusted. For example, GloED can calculate emissions based on the combustion of all types of coal and coal by-products, or it can further subdivide coal and coal by-products to determine the emissions only from sub-bituminous coal. In GloED, this hierarchical grouping of information is called the "parent" and "child" relationship.

Emission-producing activities are grouped into discrete **datasets** within GloED, based on the source of the data. Datasets may be named for the major component source categories of contained in them data. Most datasets are based on data from a single study. When you select one or more datasets of activities, you then have the option of narrowing the scope of the data by selecting the desired data contained associated with the datasets. You can select by country, sector, fuel, and/or pollutant. Within the dataset filters for source categories and fuels, there are hierarchical groupings of information so that the data requested can be as specific as possible. The final set of selected activities is used to generate the emissions inventory **scenario**. The GloED **Scenario** feature adds considerable flexibility to GloED. It allows "mix and match" of data included in multiple datasets so the user can construct an emissions inventory that combines data from multiple datasets or selections from a single dataset.

The contents of the emission inventories generated by GloED can be reported in a variety of ways. A text summary of the emission inventories will generate a tabular breakdown of the results by pollutant, sector, and/or country. GloED can also provide a pie chart or bar chart showing the top 9 emitting countries in a format that allows easy comparison. Finally, GloED can project the results of an emissions inventory onto a global map, using colors to designate the amount and distribution of pollutants in the selected scenario. All of these output formats can be viewed on the screen, saved to a file, or printed as hard copy.

Using this Manual

This manual has been developed to guide you through GloED from beginning to end. The instructions have been written so that users with various levels of computer experience can load, start, and utilize GloED without any other documentation. Sections of the manual include very detailed step-by-step procedures. Typescript conventions used in this manual are as follows.

- Menu selections are in bold face type with the first letter capitalized: **Scenario, Database.**

- Keys on the computer keyboard are capitalized in bold typeface and set in brackets: **[END], [TAB], [ENTER]**. Screen buttons are designated this way as well: **[QUERY].** Keystrokes to be performed simultaneously are separated by a dash: **[CTRL-TAB]**.

- Titles and field identifiers are bolded and in quotation marks, as are list box items: **"Select a Scenario to Generate," "Scenario Name."**

- Performing a particular function may involve a single selection, but in some cases may involve multiple selections. In the cases involving multiple selection steps, they may be combined in order, with each selection divided by a slash. The selections could be menu items or buttons on a dialog box. For example, to generate a scenario, the order of selections is: **Scenario/Generate/"Scenario Name."**

- Selections or functions that the user is to perform are preceded by a command, such as: Move to, Type, or Select.

- Text to be typed will be designated by the command to type, followed by the text in lowercase bold italics: type ***filename***.

☞ ***REMEMBER: This slash, /, separates command functions. Do not type it.***

Users are encouraged to provide comments about the GloED system and suggestions for modifying or enhancing the software. Please fill out and return the user's report form provided in Appendix H. Please include all of the requested information about your individual computer system.

INSTALLING GloED

The installation procedure for the GloED system is automated and GloED is installed in its own directory.

Recommended Hardware

Before initiating the installation procedure, review the recommended hardware list provided below. Be sure you are equipped with *at least* the minimal hardware requirements listed before beginning.

IBM PC (or compatible) Pentium 133 MHz
100 Mb of available hard disk storage
VGA-compatible display
Extended Memory Manager with 2048 kb of extended memory
Mouse
640kb base memory with 450kb free available memory

Minimal Hardware Requirements

IBM PC-AT (or compatible) (80286 processor)
25 Mb of available hard disk storage
EGA-compatible display
640kb base memory with 400kb free available memory

DOS Configuration Requirements

These statements are required for the config.sys file for GloED to operate. The user will need to make these changes in the config.sys file. Edit the config.sys file and save. Reboot the system.

Files = 90
Buffers = 20

Installation Steps

1 Make sure that you have at least 20 megabytes of available storage on your hard disk. More disk space will be needed as you work with GloED.

2 Insert Disk 1 of the GloED distribution diskettes in your floppy disk drive.

3 At the **C:>** prompt, type the new drive:/**[ENTER]** (e.g., **b:/[ENTER]**).

4 At the new prompt, type ***install***/**[ENTER]**.

5 Follow the on-screen prompts.

6 Once the install routine is completed, verify that the config.sys file on your hard disk is configured to run GloED properly. Type ***config.sys*** to see what the config.sys file contains and make sure it includes the following:

Files = 90
Buffers = 20

If your config.sys file needs to be revised, you will need to use the DOS editor or another text editor to make these changes in config.sys.

7 Once the config.sys file is properly configured, type ***chkdsk*** to ensure that at least 400kb of memory is available. If not, edit config.sys and autoexec.bat files to provide for at least 400kb of available memory.

8 Reboot system. (Press **[CTRL]-[ALT]-[DELETE]**.)

9 Change directory by typing ***cd gloed*** at the **C:>** prompt (i.e., **c:>cd gloed**).

10 Verify system memory to make sure you have at least 400kb of available memory.

☞ ***REMEMBER: This slash, /, separates command functions. Do not type it.***

What to Do Next

For users not very familiar with the type of graphical user interfaces used in GloED, it is recommended that these users proceed with the most thorough introduction to GloED:

1 Read and get well acquainted with the "Getting Started" section in Chapter 1.

2 Read and work through the "GloED Tour" in Chapter 2.

3 Read and work through each of the sections in Chapter 3 for each of the GloED **Main Menu** components. Reading and working through these sections will acquaint you with all of the GloED features.

4 Read and work through "Developing Global Estimates" in Chapter 4. This section demonstrates some of the more subtle aspects of developing global inventories.

5 Read the information contained in the Appendices.

Alternatively, if familiar with graphical user interfaces and experienced with the use of software in general, the user might want to try a faster track:

1 Read and work through "The GloED Tour" in Chapter 2.

2 Read Chapter 3 sections, as necessary.

3 Read and work through "Developing Global Estimates" in Chapter 4. This section demonstrates some of the more subtle aspects of developing global inventories.

4 Read the information contained in the Appendices.

GETTING STARTED

Starting GloED

■ When you installed GloED on your computer (as detailed in "Installing GloED"), you installed the program in a directory where it is now stored. To access the GloED directory:

☞ ***If you have a properly installed mouse, an arrow like pointer should be displayed on the screen when the GloED Main Menu appears. If you want to use a mouse and no mouse pointer is displayed on the screen, you must EXIT GloED and load your mouse driver and restart GloED.***

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1 At the **C:>** prompt, type ***cd gloed*/[ENTER]**.

2 To start the program, type ***gloed*/[ENTER]**. The screen will fill with the GloED opening logo.

3 Press any key to begin the program.

4 The **Main Menu** box appears at the top of the screen (Figure 1). This **Main Menu** will always appear along the top of your screen as long as the program is running.

Figure 1. The GloED Main Menu

When you select an item from the **Main Menu**, GloED will display a "pull-down" menu that applies to the **Main Menu** option. Pull-down menus with a carat **[>]** indicate that there is a right-side pull-down menu with additional options (Figure 2). Right-side pull-down menus contain selections that allow you to perform a specific function.

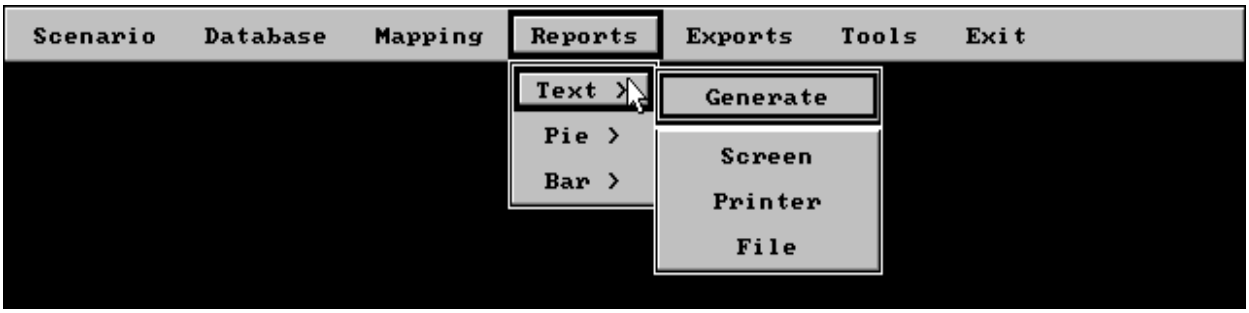

Figure 2. Example of a Right-Side Pull-Down Menu

The next section explains how to move around in GloED. It explains for those unfamiliar with the type of user interface used in GloED the various elements of the GloED user interface.

Moving Around in GloED

For the user acquainted with the GloED type of user interface this section can be skipped. GloED can be used with or without a mouse. Any items from the **Main Menu** or any of the dialog boxes can be selected by pointing to them with a mouse and clicking. If you do not have a mouse, only a few keystrokes are necessary to move around. The following symbols will help you find the instructions you need at a glance:

- Instructions for mouse users.
- Instructions for keyboard users.

The GloED User Interface

The GloED program user interface is implemented using graphical user interface (GUI) technology. This type of user interface is generally recognized as more supportive of the user and providing greater ease of use and accessibility to program functions and capabilities. The GUI-based GloED interface is most easily navigated with the use of the mouse. However, every single GloED function is also available through the keyboard. What follows are definitions of various terms associated with user interfaces of the GloED type:

- **Controls**--Controls are the interface items or objects used by the user to operate the GloED software. The GloED controls include menus, command buttons, list boxes, text boxes, sliders, control arrows, and check boxes.

- **The Cursor**--The cursor is a screen graphic used to indicate the position in the screen to be acted on. Three different types of cursors are used in GloED. The text cursor is a horizontal line one character wide, similar to an underline. This type of cursor is present in the text box control. The pointing cursor looks like an arrow and is the cursor type used most often. The cross-hair cursor is a specialized cursor type used specifically in the GloED mapping facility.

- **Drag**--Dragging the mouse consists of pressing and holding the left mouse button and then moving the mouse. The drag operation is used in GloED in the mapping facility.

- **Focus**--The "focus" represents the part or object of the interface that will receive the next piece of input. In GloED, the control object that has focus varies depending on the object type. For a menu item and items in a list box, the current item with input focus is shown with a "box" around it. For command buttons, the input focus is indicated by shadow-highlighting of the button. Some controls do not have any visible indication of focus, for example,the slider and up-arrow and down arrow in the scroll-box control of a list-box.

- **The Mouse**--The most important mouse operations in GloED are pointing, pressing, and clicking. The pointing action is defined as the placement of the Cursor over some defined area of the screen "hot-spot." Pressing consists of pressing the left mouse button and holding it. In GloED, "clicking" consists of pressing and releasing the left mouse button without moving the mouse.

- **To Select with a Mouse**--Selection with the mouse consists of pointing and clicking. With this action, selections are made from the various GloED controls. For some controls, such as items in a list box, that when selected remain selected or they can be "deselected" by selecting once again.

- **The Keyboard**--The operations of the keyboard involve several keys: the **[TAB]** and **[SHIFT-TAB]** to shift focus from one control to the next, the arrow cursor keys to shift focus from one item to another within a control, and the **[ENTER]** key to actually make the selection.

- **To Select with the Keyboard**--Selection with the keyboard is made by first shifting focus with the **[TAB]** key to the desired control and pressing **[ENTER]**. For some controls, such as items in a list box, that when selected remain selected or they can be "deselected" by selecting once again.

GloED User Interface Elements

GloED uses three main user interface elements: menus, dialog boxes, and message boxes. These interface elements have controls that are used by the GloED user to pass selections and define actions to be taken.

- **Menus--**The GloED menus are of three distinct types: "frame" menu, "pull-down menus" and "right-side pull-down menus." The GloED Main Menu is a "frame" type menu, with pull-downs that drop when the frame menu item is selected. A carat **[>]** in a pull down menu indicates the presence of a right-side pull-down menu. When the item of the pull-down menu with a carat **[>]** is selected,the right-side pull-down menu will appear. The menu items provide the user with access to GloED's major functions.

- **Dialog Box--**Applications require information from the user to operate on. The dialog box and associated controls are used for the user to supply the required information. The dialog box contains controls that collect the user's information and choices (Figure 3).

- **The Message Box--**GloED uses two types of message boxes: the first type is used to pass to the user text based information, and the second type is used to inform the user of the completion status of a task being performed. In most cases, message boxes in GloED have an associated **[OK]** or **[ABORT]** command button.

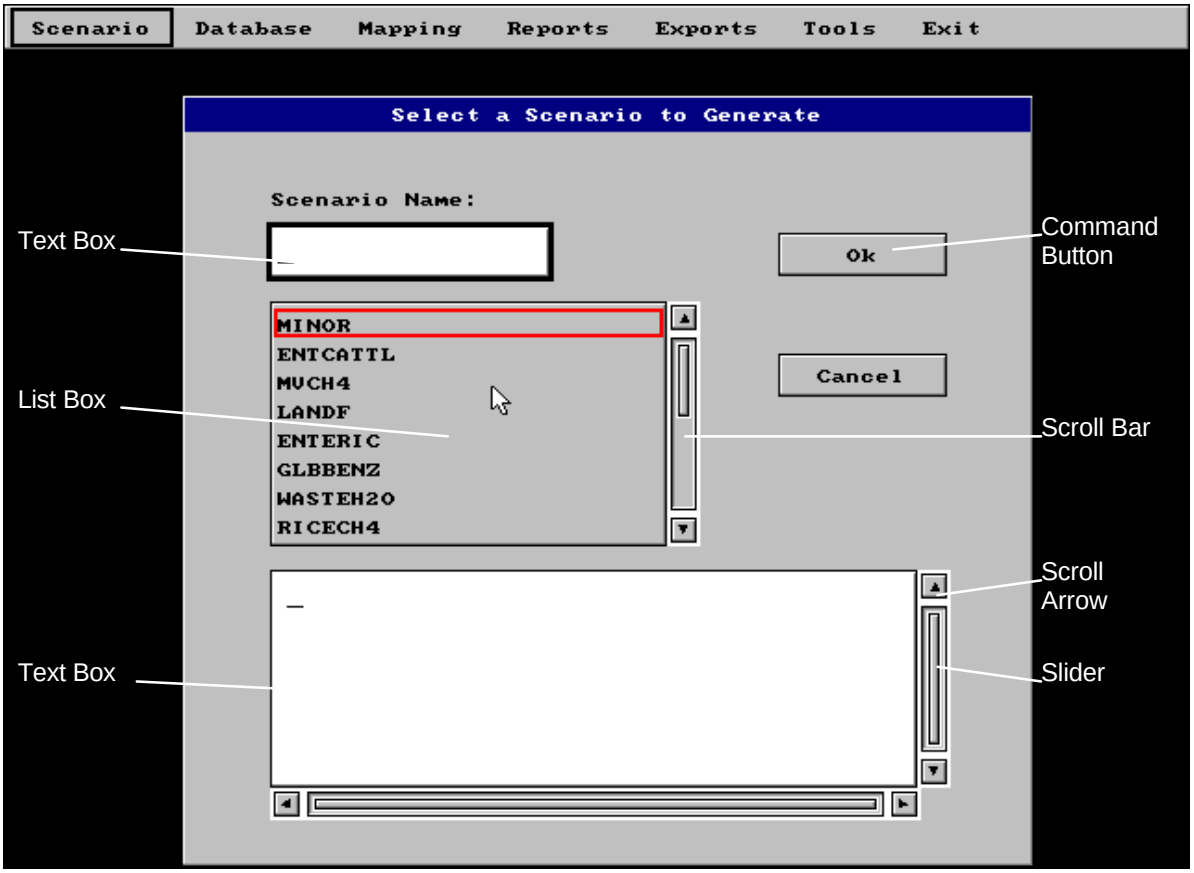

Figure 3. Control Elements of a GloED Dialog Box

Controls

As described previously, controls are the interface items or objects used by the user to operate the GloED software. The GloED controls include: command buttons, list boxes, text boxes, sliders, control arrows, and check boxes.

- **Command Button--**Specifies the action or response represented by the button (e.g., **Ok**, and **Cancel**). The user can choose a command button by clicking the mouse when the pointer is over the button or pressing the **[ENTER]** key when the button has focus.

- **List Box--**List boxes are used to display a list of choices for the user. List boxes can be classified according to whether they permit the selection of one or more multiple items.

- **Scroll Bars--**Scroll bars allow the user to move the list in display in the scroll box, thereby revealing previously hidden portions of the list.

- **Slider--**Sliders are used to display and adjust values on continuous dimensions. The slider represents how far the current view of the document text or data list is from the top (for vertical scroll bars) or from the left edge (for horizontal bars).

- **Scroll Arrow--**Scroll arrows appear at each end of the scroll bar, pointing in opposite directions away from the center of the scroll bar. The scroll arrows point in the direction that the window moves the data in the opposite direction.

- **Text Box--**Text boxes are edit controls into which the user types information. The user can accept the current text, edit it, delete it, or replace it. The text box supports the use of backspace, delete, end, and insert keys for purposes of manipulating the text.

- **Check Box--**Check boxes control individual choices that are either turned on or off. When the choice is turned on, the check box shows an X in it. When it is turned off, the check box is blank.

The Quick Reference Box below, provides a quick review of the various mouse or keyboard steps required to navigate the GloED user interface.

QUICK REFERENCE BOX		
Exit from a Dialog Box:	 	Click on **[CANCEL]**. **[TAB]** to the on-screen dialog box **[CANCEL]** and press **[ENTER]**.
Select a Menu Item:	 	Point and click on menu item, or Use the **[←][→] or [ ][ ]** cursor keys to move to the selection and press **[ENTER]**.
List Boxes:	 	Click the scroll arrows (on the right side of the list box) to move through the list one item at a time, or Drag the slider (on the right side of the list box) to move over several items at once. **[TAB]** to get to the list box. **[↑][↓]** arrow keys or **[PG-UP]** and **[PG-DOWN]** to move up or down in the list box. [**HOME]** jumps to the top of the list box. **[END]** jumps to the bottom of the list box. **[ENTER]** selects an item from the list box.

CHAPTER 2

This section offers a quick tour of some GloED features. Several GloED features are demonstrated in the following exercises so the user can gain familiarity with the GloED software system. As part of this tour, the user will load a scenario, generate a thematic map, perform a graphical query, generate a bar chart, and generate a text report and view it on the screen. The GloED tour guides the user in a step-by-step fashion, so that the user need only have a minimal understanding of certain aspects of using the interface, as described in the "Getting Started" section in Chapter 1. The user is also encouraged to explore other GloED features.

☞ ***Read "Getting Started" in Chapter 1 before taking the GloED tour.***

CONTENTS

A TOUR OF GloED

Loading the Tour Scenario

1 Select **Scenario** from the **Main Menu**.

2 Select **Load** from the pull-down menu.

3 Select the **"Tour"** scenario from the list box.

4 Select **[OK]**.

(The "loading" of the tour scenario sets the tour scenario as the current inventory scenario being operated by GloED.)

Generating a Thematic Map

1 Select **Mapping** from the **Main Menu**. A **"Title Entry"** list box will appear.

2 Select **Title 1** text box and type a title such as ***Example of GloED Thematic Mapping***.

3 Select **[OK]**.

GloED will generate a thematic map color-coded by the amount of emissions associated with a given country for the example inventory scenario. Associated control buttons will appear at the bottom of the thematic mapping screen.

Performing a Graphical Query

1 Select the **[QUERY FILE]** command button at the bottom of the screen.

2 Position the cross-hair cursor over Australia and select.

The emissions associated with Australia in the loaded emissions inventory scenario will appear in a message box.

3 Select **[OK]** in the message box.

4 Select **[OK]** at the bottom right corner of the map controls.

Generating a Bar Chart

1 Select **Reports** from the **Main Menu**.

2 Select **Bar/Screen** from the pull-down menu.

3 Select **Title 1** text box and type a title such as ***Example GloED Bar Chart***.

4 Select **[OK]**.

The GloED will generate a bar chart of the top nine emitters for the loaded emissions inventory scenario, with a tenth bar for all other emitters combined.

Generating a Text Report

1 Select **Reports** from the **Main Menu**.

2 Select **Text/Generate** from the pull-down menu.

3 Select **"Global Sector Emission Distribution Report"** from the list box.

4 Select **[OK]**.

The Global Sector Emission Distribution report was chosen because this report is generated quickly. Some reports will take a considerable time to generate, depending on the size of the scenario and the type of report.

Viewing Text Report on Screen

1 Select **Reports** from the **Main Menu**.

2 Select **Text** from the pull-down menu.

3 Select **Screen** from the right-side menu.

The Global Sector Distribution report will be displayed in a split window browser. Because these reports are wider than the screen can display, the split window browser allows the user to maintain the source category in the left window and the associated data in the right window. The windows are "coupled" in the vertical scroll. The user can use the scroll bars to move around in the report. When finished, select **[OK]** to return to the **Main Menu**.

CHAPTER 3

This chapter consists of eight sections: Main Menu, Scenario, Database, Mapping, Reports, Exports, Tools, and Exit. These sections are in the order of GloED's Main Menu and, in a tutorial style, guide the user through the use of all the GloED features. Because the GloED database editor is a complex interface, the user may want to defer the use of this facility until after the user becomes more familiar with less complex GloED facilities.

This tutorial will walk you through the selections from the GloED **Main Menu** and all of its dialog boxes and pull-down menus. However, you may need a few basic instructions about starting and moving around in the program so the system will perform as desired before you begin performing specific functions with GloED.

☞ ***Be advised that the tutorial for this version of GloED operates from the actual program. If you alter any data records while using the tutorial, this manual may not accurately describe what occurs when you perform the tutorial commands during any subsequent session. You should re-install the program from the original diskettes after performing the tutorial.***

CONTENTS

THE MAIN MENU

After you start the program, the GloED **Main Menu** always appears along the top of the screen (see Figure 1). The **Main Menu** is a list of the functions available in GloED. To select an item from the **Main Menu**:

- Move the mouse pointer to the item and click once.
- Use the **[←][→]** keys to move to it and press **[ENTER]**.

This will "pull down" the next menu or dialog box.

The **Main Menu** selections and their general functions are as follows:

- **Scenario**--Allows you to load a previously created scenario, generate a new scenario, combine two or more scenarios, edit a previously created scenario, or delete a previously created scenario.

- **Database**--Allows you to add new data, modify (edit) existing data, or delete data. The **Database** option also allows you to browse through data with the seek function and search arrows. The rebuild option allows you to reconstruct GloED internal data pointers and check for certain data completeness items. This is useful after a system crash or other anomalous behavior.

- **Mapping**--Allows you to display the emissions inventory in the form of a thematic map and query country-specific emissions for the generated scenarios.

- **Reports**--Allows you to report the results of the inventory calculation in text form (as tables), or in graphics form (as bar charts or pie charts).

- **Exports**--Allows you to export the results of the inventory calculation to a Lotus 1-2-3, dBASE, or ASCII file.

- **Tools**--Allows you to access the units conversion utility and the Lotus importer.

- **Exit**--Allows you to leave the program and return to the DOS prompt.

SCENARIO

Datasets

The dataset is a group of inventory data with some feature, source category, study, or author in common. The data associated with a dataset can be emission estimates or emissions factors and activities. A dataset can be a single source category scheme for a single country or multiple countries, or it can contain multiple source categories many levels deep, for multiple countries and multiple pollutants. As described, a dataset is a flexible entity useful for the grouping of emissions inventory data with common attributes.

Inventory Scenarios

The inventory scenario is the main grouping for emission scenarios within GloED. Using GloED's scenario capability, a user can combine data contained in GloED's database in a variety of ways. The individual user can enter new data and combine it with other data present in the GloED distribution database to generate new global estimates of any particular greenhouse gas for any source category. The inventory scenario can also serve as a "what if" tool for the comparison of "inventory scenarios" that might reflect different estimates, or levels of control or changes in activity levels. For example, a user might choose to enter new data using the GloED Database Editor and create a new dataset that might reflect some source categories, activity levels, and emission factors. The user could then modify the data in this dataset and create a new dataset. The modification might reflect a higher level of control. From these datasets, inventory scenarios can be generated and the overall effect of the emission factor reflects control differences that can be assessed by generating various GloED reports.

☞ Select **Scenario** from the **Main Menu** by:

- Pointing to **Scenario** and clicking once with the mouse.
- Moving to **Scenario** with the **[←][→]** cursor keys and pressing **[ENTER]**.

A pull-down menu will appear that will allow you the option to **Load** a scenario from your disk, **Generate** a new scenario, **Combine** two or more scenarios, **Edit** a previously created scenario, or **Delete** a scenario from your disk (Figure 4).

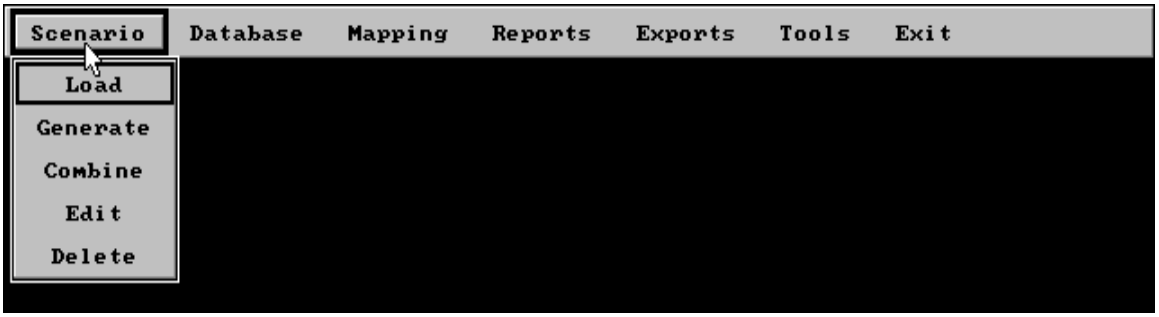

Figure 4. Scenario Pull-Down Menu

Loading a Scenario

This option allows you to load previously generated scenarios into the system memory, so that you may then map them, generate reports, or export them.

■ To load a scenario you have generated:

1 Select **Scenario/Load**.

A dialog box will appear entitled **"Select a Scenario to Load"** (Figure 5). This dialog box will contain a scroll box that lists all of the scenarios that have been generated in previous sessions. If you select the scroll box, any previously entered notes describing the scenario will appear.

2 Select scenario name text box and type the name of an existing scenario listed in the scroll box, or select the scenario name directly from the scroll box.

3 Select **[OK]**.

At this point you have loaded an existing scenario.

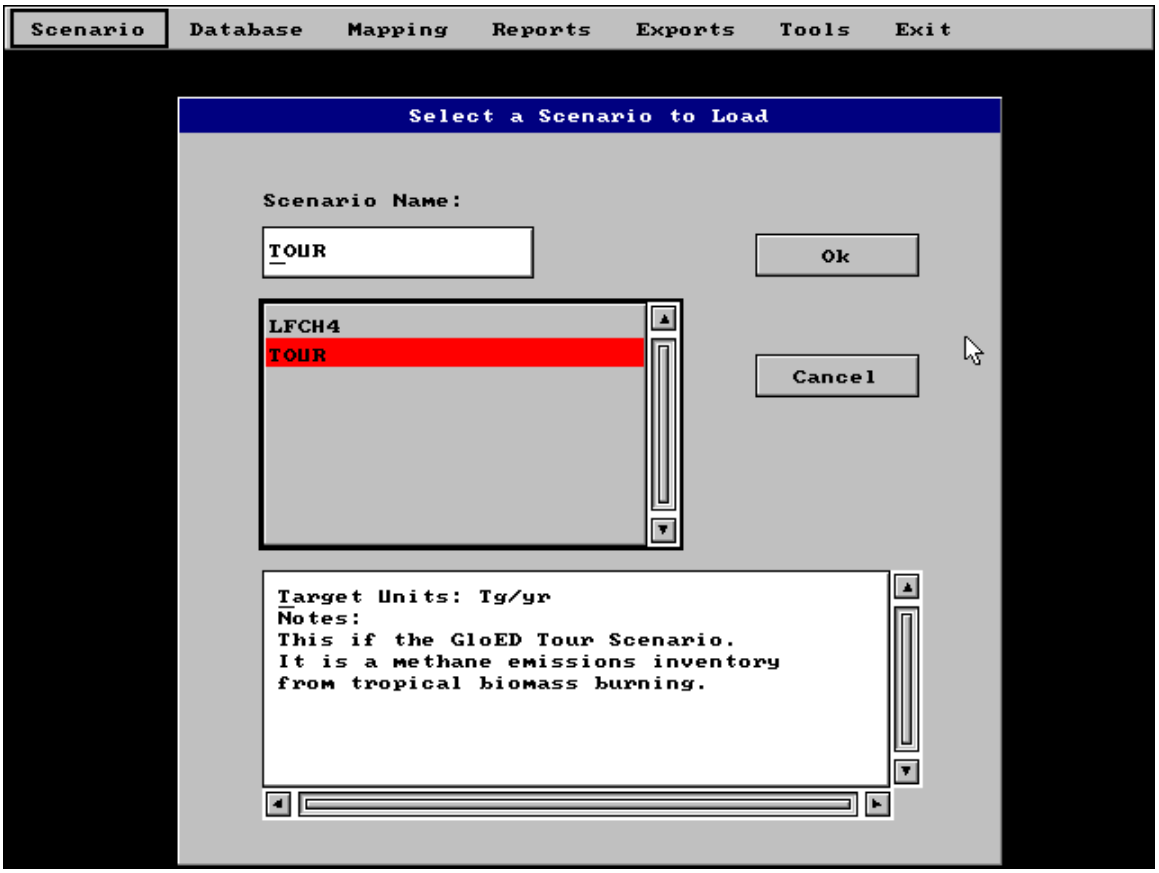

Figure 5. Select a Scenario to Load

☞ **To exit the dialog box without loading a scenario:**

- ***Select [CANCEL].***
- ***Press [TAB] until [CANCEL] is highlighted and press [ENTER].***

Generating a Scenario

This feature allows you to generate customized, new scenarios and stores them in a subdirectory with an extension of **.scn** for later use, or to use them for report generation or export. Select **Scenario/Generate**. A dialog box will appear entitled **"Select a Scenario to Generate"** (Figure 6). This dialog box contains a list box that lists all of the scenarios generated in previous GloED sessions.

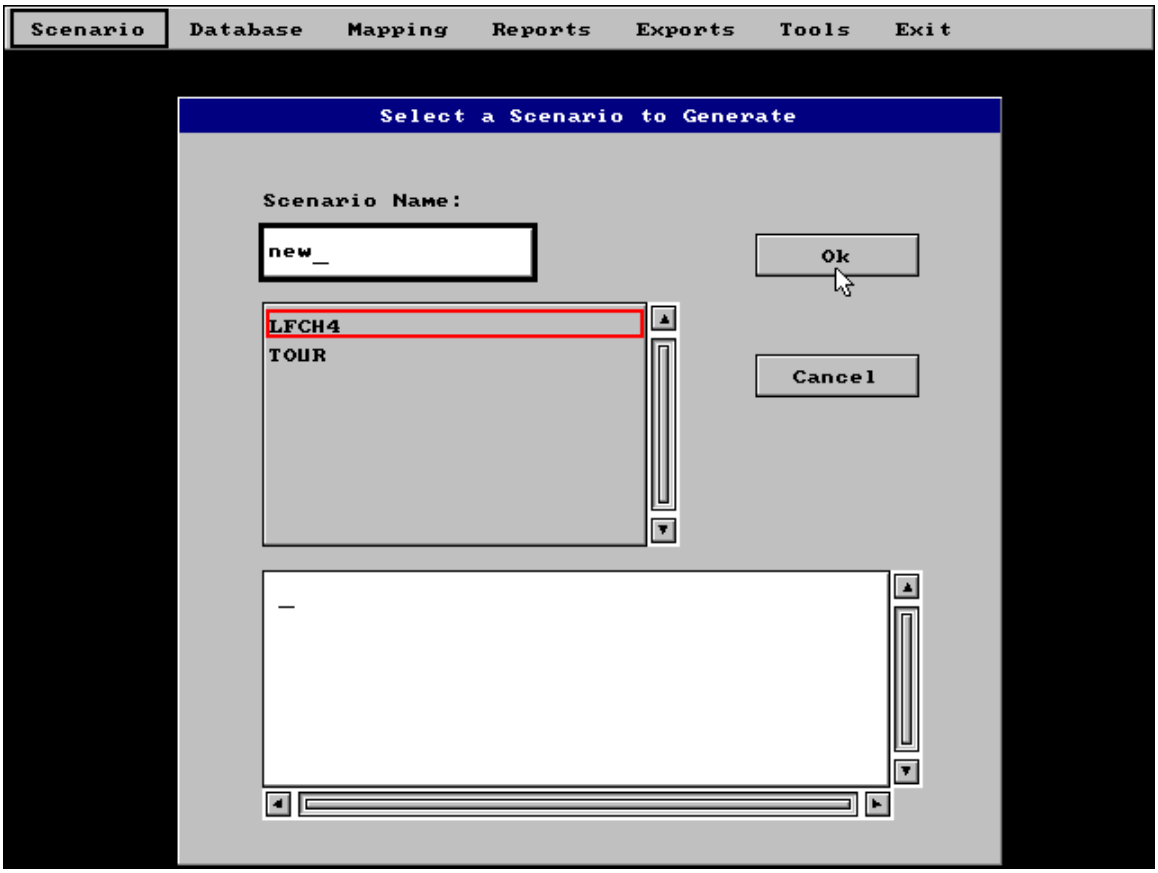

Figure 6. Select a Scenario to Generate

☞ ***REMEMBER: To "select" an option:***

Move the mouse pointer to the item and click once.

Press [TAB] until the item is highlighted and then press [ENTER].

If you select the name of a previously generated scenario from the list box and press **[OK]**, a message will appear indicating that a directory already exists for that scenario, and you will have an option of overwriting the existing scenario information (Figure 7). If you then select **[OK]**, GloED will overwrite the files for the scenario you previously generated under that name and it will replace your previously customized data with new data. You must then regenerate the scenario.

Figure 7. Scenario Directory Already Exists

☞ ***Scenario names follow all DOS directory naming conventions, they can be no longer than eight characters and must be one word.***

To generate a customized, new scenario, select the **"Scenario Name"** text box and type a name that is no more than eight characters and is one word. Select **[OK]** or press **[ENTER]**. GloED will produce a dialog box entitled **"Active Filter Selection"** (Figure 8). This filter allows you to customize the scenario you want to generate. The filter allows you to choose **"All Available Selections"** (the default setting) or to select a subset of available emissions data, countries, source sectors, fuels, pollutants, and target units for the emissions scenario you want to build.

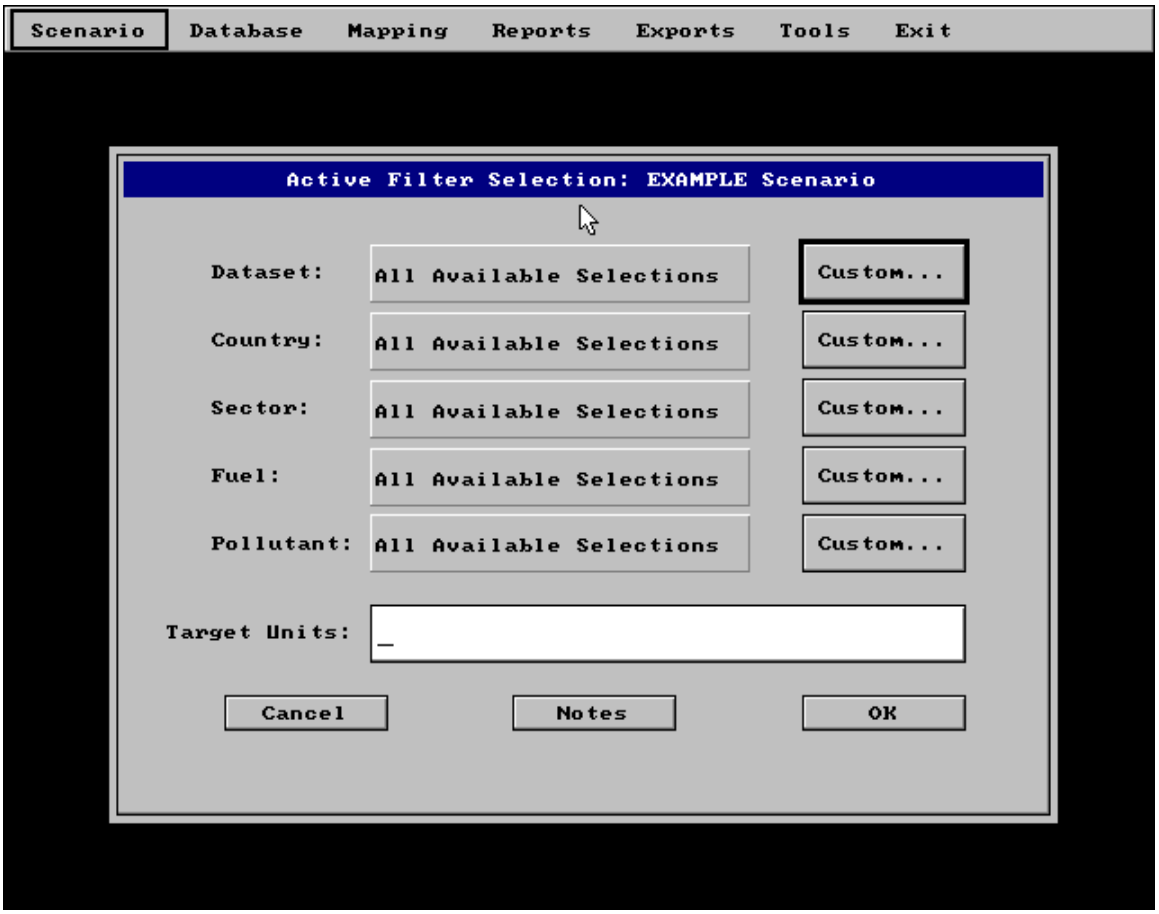

Figure 8. Active Filter Selection Dialog Box

Selecting a subset of **"All Available Selections"** is called customizing. The more narrowly you define the portion of the data you want for a scenario, the less time it will take for GloED to compile the data subset.

☞ ***NOTE: "All Available Selections" is the default setting, but you may select a more limited number of datasets. If you select "All Available Selections" for the "Dataset" of the scenario you wish to generate, be advised that the data compilation may require a great deal of time and several megabytes of disk storage.***

Datasets are the highest level of organization of GloED data. The user needs to exercise some caution when selecting multiple datasets. It is possible that two datasets may contain the same source category causing source category overlap. In those instances,

GloED will select the duplicate source category from the dataset that it appears first in the dataset list box and include it in the scenario to be generated. In the **"Active Filter Selection"** dialog box, specifying datasets automatically limits the selections displayed in **Country/Sector/Fuel/Pollutant** to those for which data exists in the dataset.

After you have customized your scenario, you may wish to specify the units in which you want your emissions inventory to be reported. This is done in the **"Target Units"** text box. You do not need to know the units used in the individual datasets, because GloED contains a unit conversion utility that will automatically convert the results of your scenario to the units that you have defined as your targets.

☞ ***This utility will be especially useful if you want to compare the results of a series of scenarios. You can enter the same units for all of your scenarios and then no conversion will be required to make a comparison. (A complete discussion of the use of the unit conversion utility is presented in Appendix D.)***

If, after entering target units and selecting **[OK],** a dialog box entitled **"New Unit Identification"** appears, then you have selected a unit that is not recognized by the GloED Unit Conversion Utility (Figure 9). The **"New Unit Identification"** dialog box is prompting you to give clarifying information about the "new" unit. There are two ways of handling this situation. One way is to select **[CANCEL]** from the **"New Unit Identification"** dialog box and then re-enter the units using a recognizable syntax or a different unit (Appendix D contains a list of units GloED is assured to recognize).

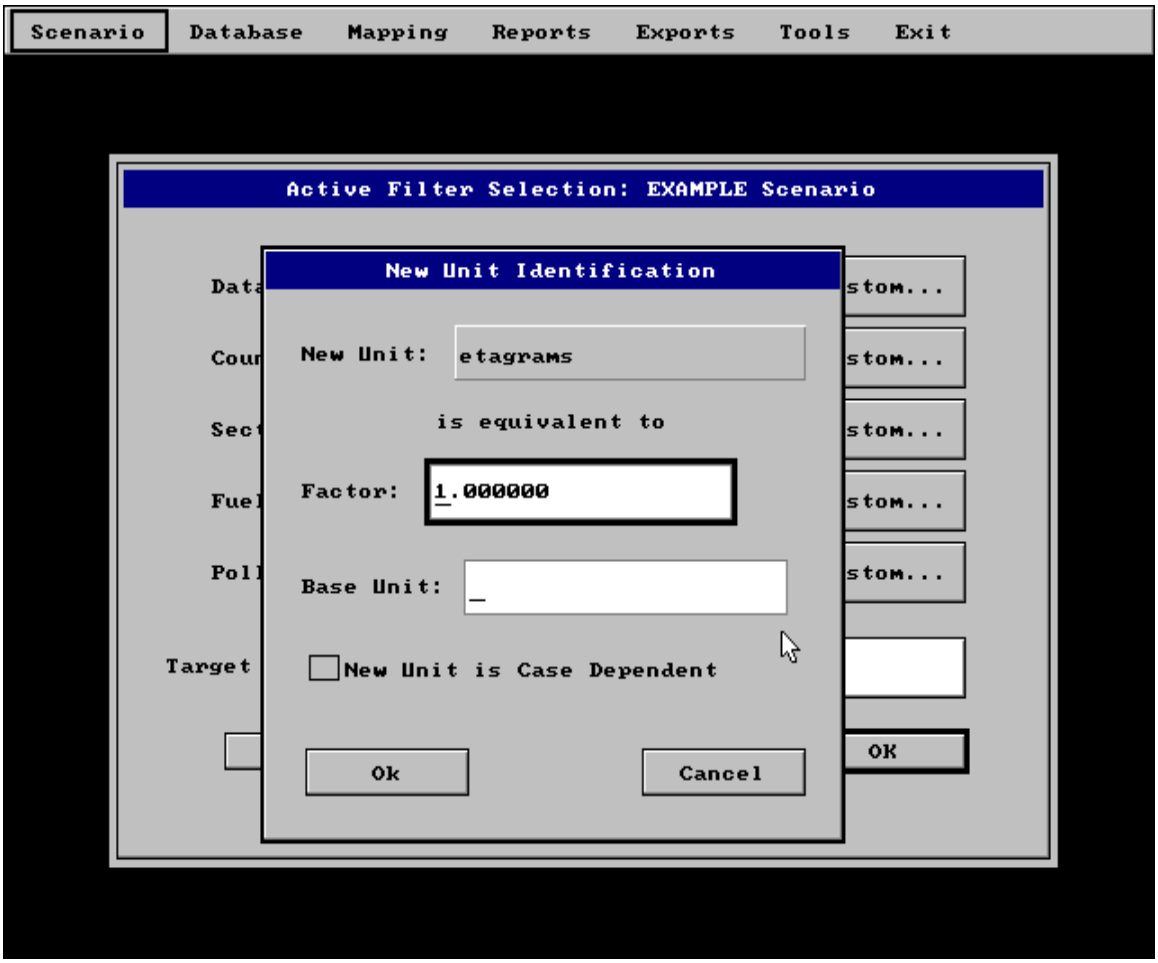

Figure 9. New Unit Identification Screen

Another option is to make sure the **"Target Units"** text box still indicates the units you chose. To do so, at the **"New Unit Identification"** dialog box, type a comparable unit in the **"Base Unit"** text box. For example, if at first you enter ***megaton/yr*** and the **"New Unit Identification"** dialog box appears, then type ***Megaton/yr.*** This tells GloED's Unit Conversion Utility that the "new" unit is equivalent to a unit that GloED already recognizes. The "new" unit is then stored in the Unit Conversion Utility as a unit of

measure. In the future, GloED will always recognize it as a valid unit. For a more detailed description of the GloED Unit Conversion Utility, please refer to Appendix D.

One last feature of the **Scenario "Active Filter Selection"** dialog box is the **[NOTES]** command button. Select **[NOTES]** and the **"Note Entry"** dialog box will appear (Figure 10). By selecting the open text box, you can type an explanatory notation for the customized selections you have made in your scenario. This notation will remain with the scenario after it has been generated and will serve as descriptive, identifying information in the future, should you work with the same scenario again. The notes should help you recall specific, critical information about the scenario, such as how it was customized.

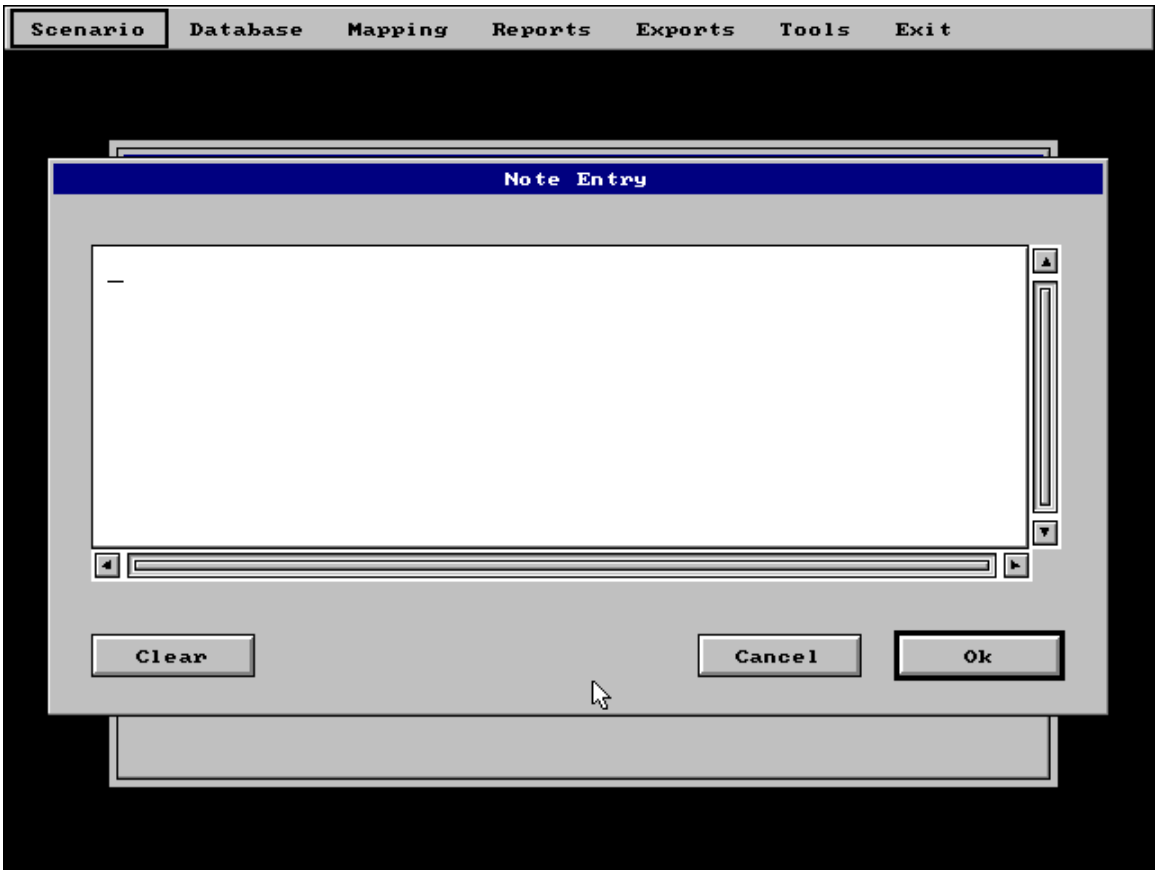

Figure 10. Note Entry Dialog Box

Generating a Scenario--An Example

- For this example, assume no previously generated scenarios are available. Follow the steps below to create one.

    1 Select **Scenario** from the GloED **Main Menu**.

    2 Select **Generate** from the pull-down menu.

    3 Type ***example*** in the **"Scenario Name"** text box.

    4 Select **[OK]**.

    5 From the **"Active Filter Selection"** dialog box (see Figure 8), select the **[CUSTOM...]** button corresponding to **Dataset**. A dialog box entitled **"Dataset Filter Customization"** will appear (Figure 11). It contains a list box with the titles of the emission datasets currently stored in GloED.

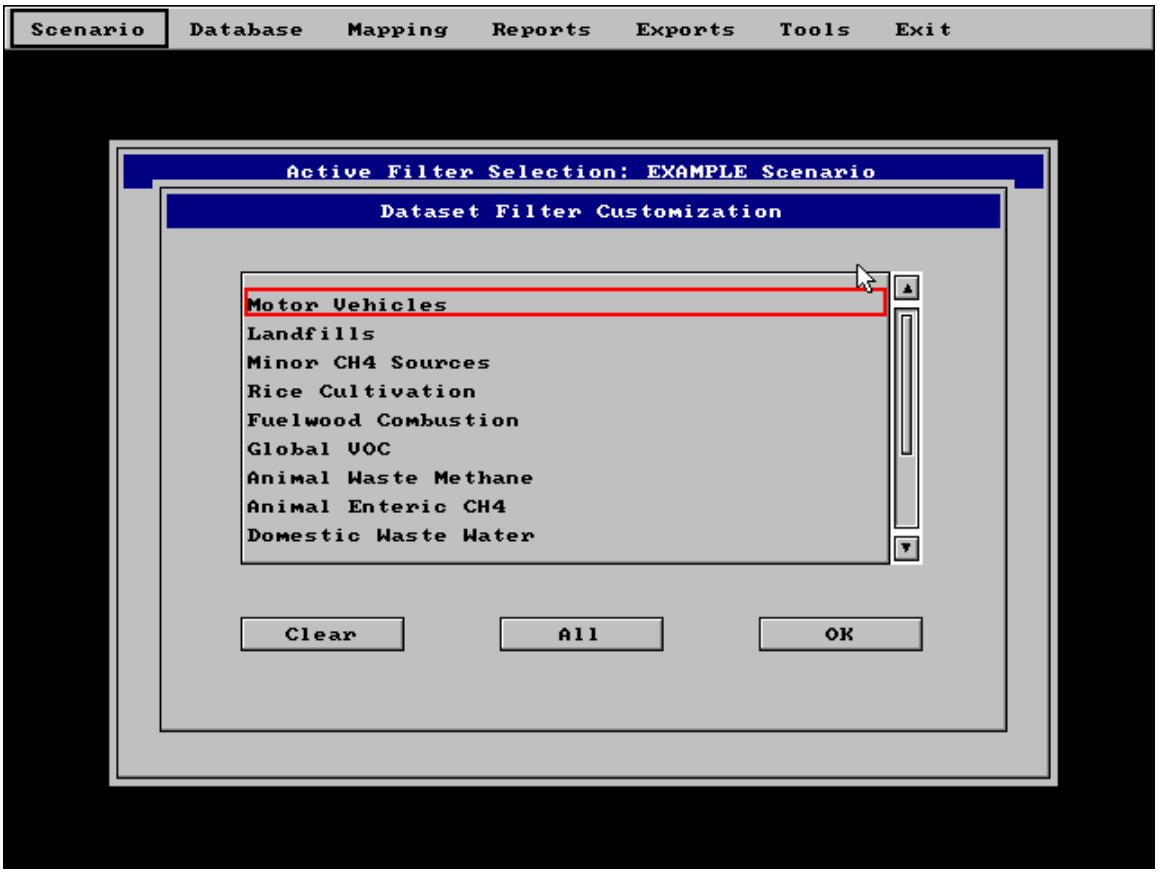

Figure 11. Dataset Filter Customization

☞ ***At least one item from each filter must be selected in order for a scenario to be generated.***

---

6 Select the list box to make it active (shown by a border). Select **Motor Vehicles/[OK]**, and GloED will return to the **"Active Filter Selection"** dialog box.

7 Select the **[CUSTOM...]** button corresponding to the **Country** option.

☞ ***NOTE: Only the countries present in the selected dataset(s) will appear in the country filter customization list box.***

---

8 At the **"Country Filter Customization"** dialog box (Figure 12) select **[ALL]/[OK]** and GloED will return to the **"Active Filter Selection**" dialog box.

9 Select the **[CUSTOM...]** button corresponding to **Sector**.

10 Select the list box to make it the currently active item. Select **[MOTOR VEHICLES]/[CHILDREN]** from the **"Sector Filter Customization"** dialog box (Figure 13). GloED will now show you all the "children" under the Motor Vehicles sector in the "motor vehicle" dataset (Figure 14). It is not usually necessary to select **[CHILDREN]** because under the GloED default settings, all the children are initially selected automatically.

11 Select **[OK]** and GloED will return to the **"Active Filter Selection**" dialog box.

12 Select the **[CUSTOM...]** button corresponding to **Fuel**.

13 Select **[ALL FUELS TOTAL]/CHILDREN** from the **"Fuel Filter Customization"** dialog box (Figure 15). The filter will indicate that all fuels available for motor vehicle data are "Liquid (oil & by-products)."

14 Select **[CHILDREN]** again, and the types of liquid fuel will be displayed.

15 Select **[OK]** and GloED will return to the **"Active Filter Selection**" dialog box.

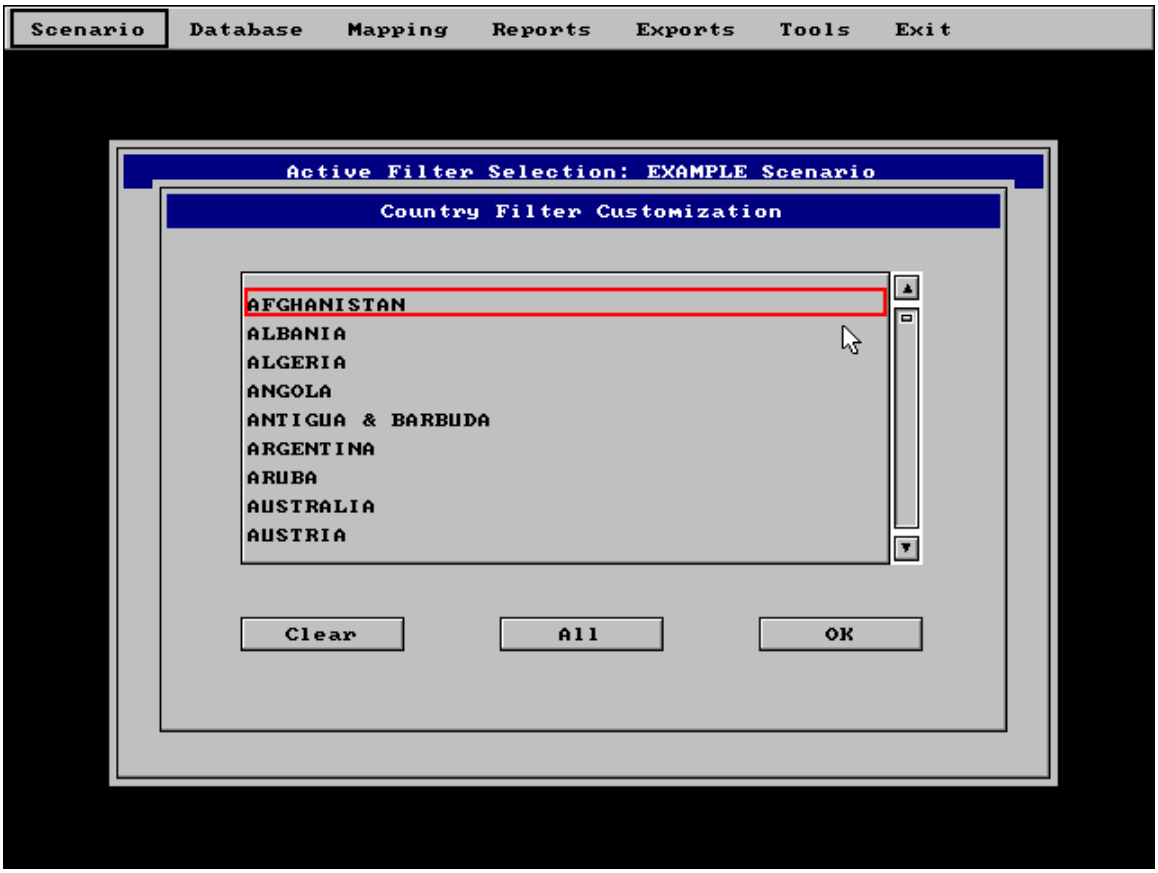

Figure 12. Country Filter Customization

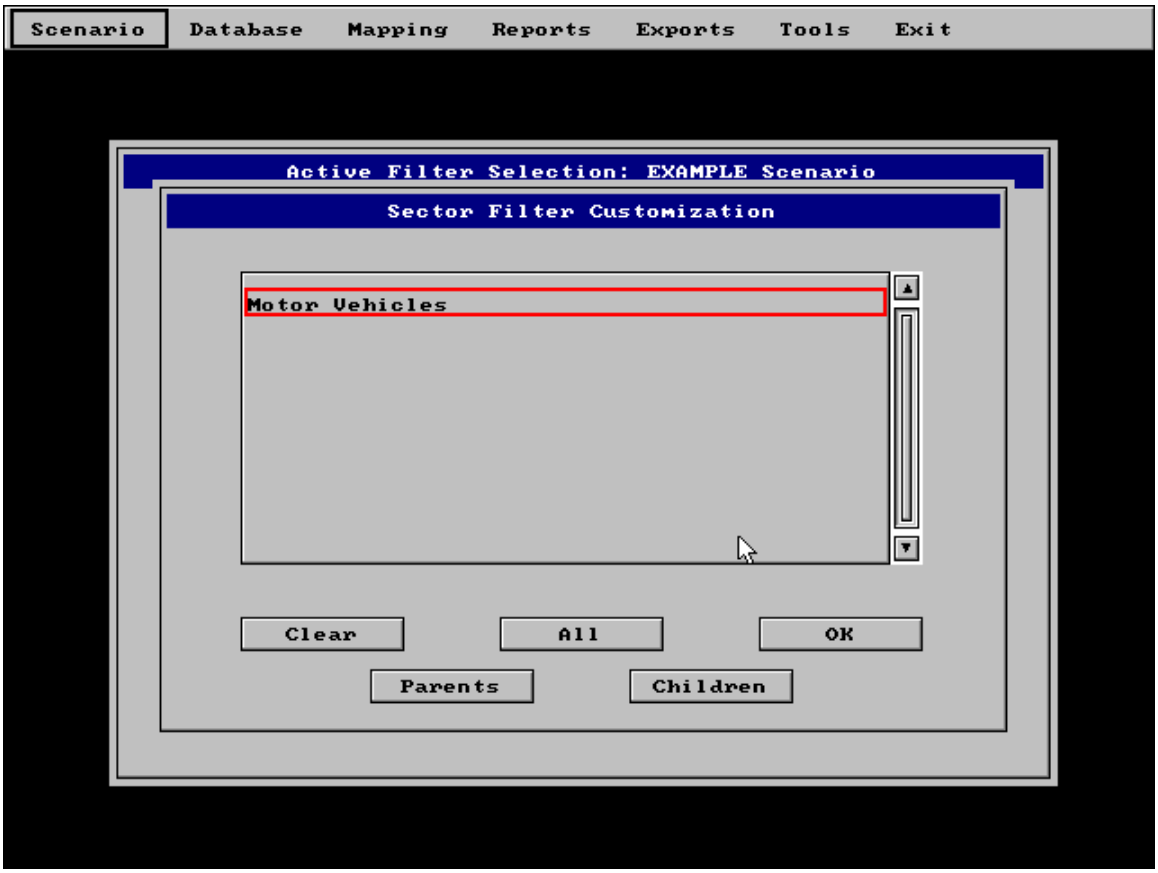

Figure 13. Sector Filter Customization

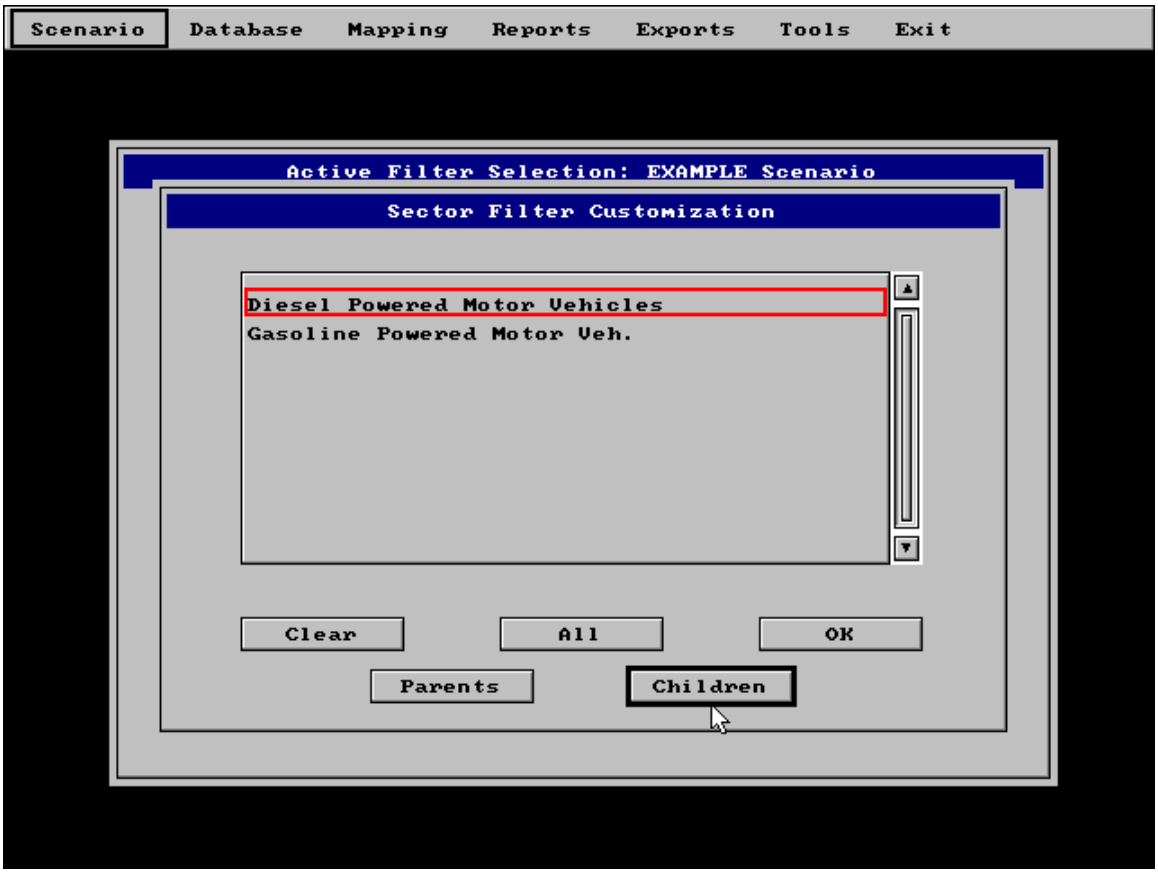

Figure 14. Motor Vehicles Dataset Sector Children

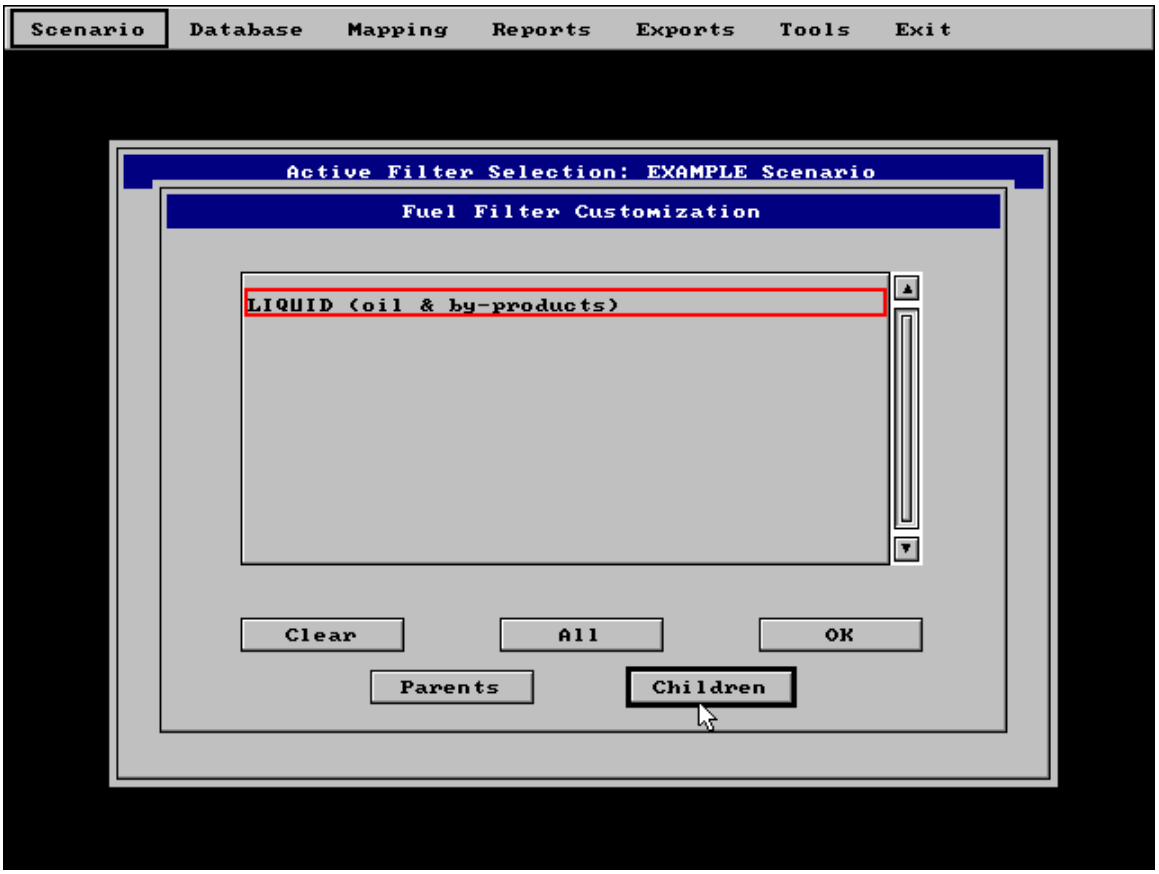

Figure 15. Fuel Filter Customization

16 Select the **[CUSTOM...]** button corresponding to **Pollutant**.

17 Select **[CH_4]** from the **"Pollutant Filter Customization"** dialog box (Figure 16).

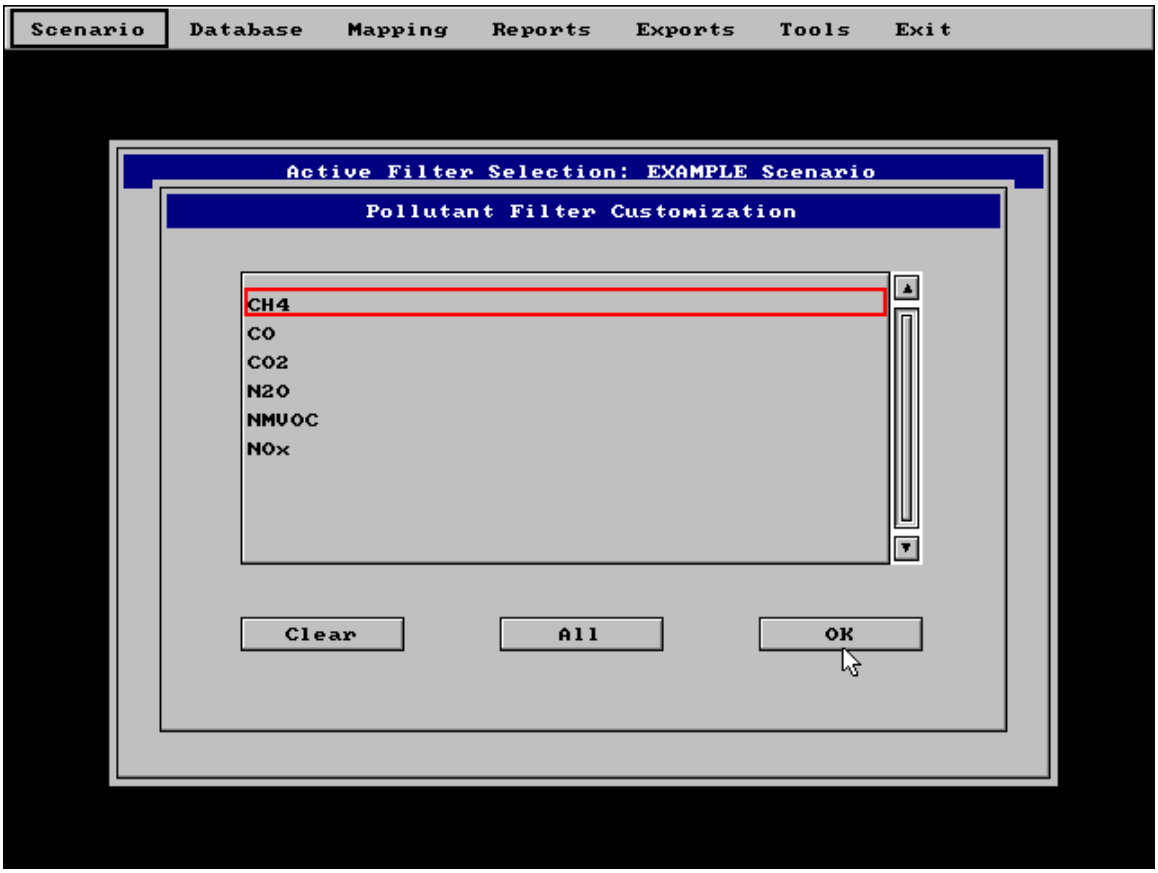

Figure 16. Pollutant Filter Customization

You have completed customizing the subset of data for building a scenario of methane emissions from motor vehicles in all countries. After you have customized your scenario, you may wish to specify the units in which you want your emissions inventory to be reported.

18 Select the **"Target Units"** text box (see Figure 8).

19 Type a logical unit for reporting your data [such as teragrams per year (Tg/yr)].

☞ ***REMEMBER: Be careful when selecting target units for reporting data. For example, there is a discernible difference between Mg/yr (megagrams per year) and mg/yr (milligrams per year)!***

20 Select **[NOTES]** and the **"Note Entry"** dialog box will appear (see Figure 9) for typing explanatory notations for the customized selections you have made in your scenario.

21 Select **[OK]** when you have completed the notes and GloED will return to the **"Active Filter Selection"** dialog box.

22 Select the **[OK]** from the **"Active Filter Selection"** dialog box to begin scenario generation.

☞ ***NOTE: If you have selected a combination of datasets, countries, sectors, and pollutants that does not reflect an existing hierarchical link in the system datasets, you will be informed by an error message and asked to lessen the restrictions on the scenario.***

A message box will appear indicating completion status of the scenario generation. If you do not wish to continue, there is an **[ABORT]** button provided or press **[ESC]** to stop scenario generation. As soon as scenario generation is completed the user can map the scenario generated, generate reports or export it to a file. Information on mapping, report, and export functions are provided later in this tutorial.

Combining Scenarios

This option allows you to combine two or more previously generated scenarios. The **Combine Scenarios** feature provides the option of combining two or more previously generated scenarios to create global estimates from the sources contained in the scenarios being combined.

When combining scenarios the user must take particular care not to duplicate emissions by having the same sources present in the scenarios being combined. The GloED system will warn the user that it has detected a potential source overlap in the scenarios being combined. Note that this feature provides the flexibility of generalizing combinations from scenarios. For example, if one scenario contains the methane emissions from light duty motor vehicles and another scenario contains the methane emissions for heavy duty motor vehicles, these can be combined to give total methane emissions from motor vehicles. If both scenarios contained emissions from light duty motor vehicles, GloED will warn the user that there is a potential overlap. In cases where the user needs to develop an inventory scenario that requires data from two datasets and these datasets contain duplicate data on some sources, the user needs to develop two scenarios where the sources in common are included in only one scenario from the dataset of choice. The two new scenarios with the selected data can then be combined into a new scenario that includes the data of choice from the two datasets.

- When **Scenario/Combine** is selected, the **"Select a Scenario to Combine"** dialog box will appear. Select the desired scenarios from the list to be combined and enter a name for the new scenario (Figure 17). Step-by-step procedures for combining scenarios are listed below:

  1 Select **Scenario** from the GloED **Main Menu**.

  2 Select **Combine** from the pull-down menu.

  3 Type in the **"Target Scenario Name"** text box the name you wish to give the combined scenario.

  4 Select at least two scenarios from the list box.

  5 Select **[OK]** if you wish to continue with the scenario combine.

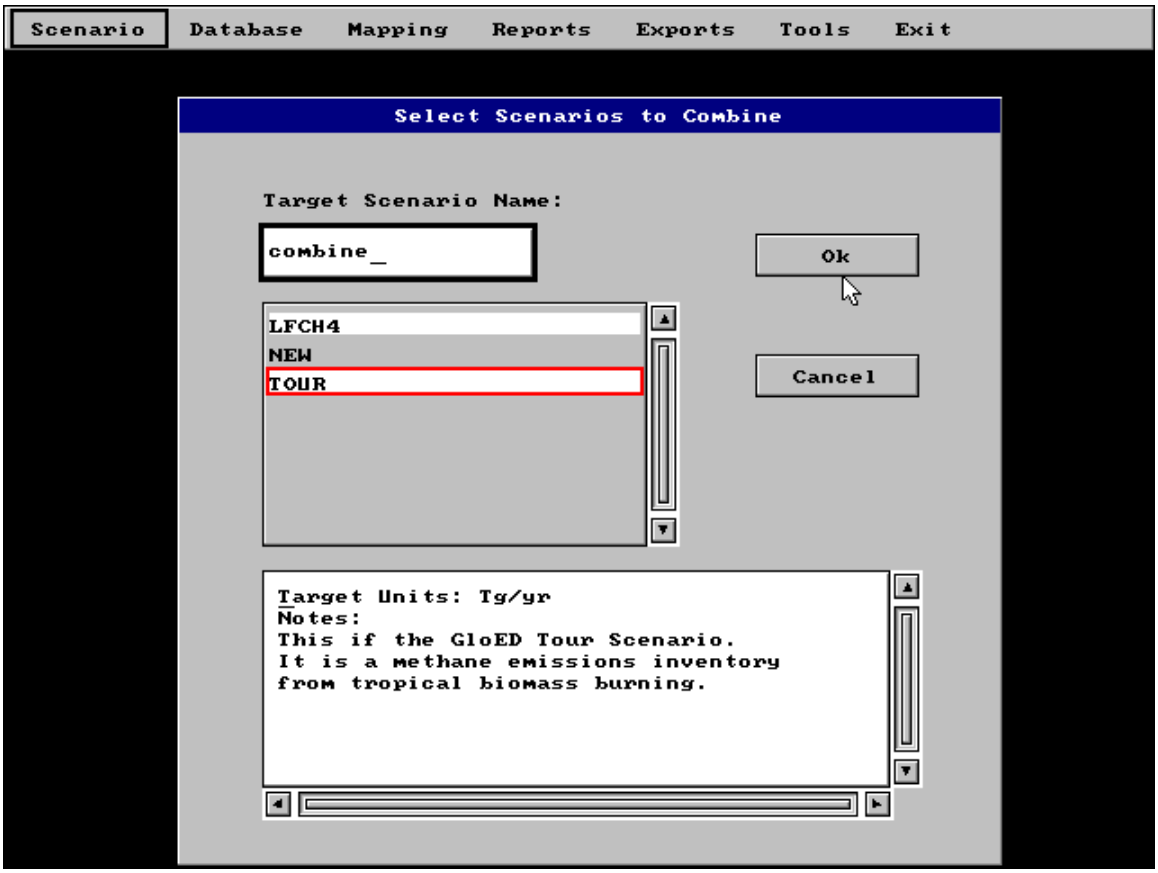

Figure 17. Select Scenarios to Combine

GloED will proceed and generate a new combined inventory scenario with the name entered in the target scenario text box. A message box will appear and report to the user the completion status of the scenario combination. In cases where the inventory scenarios involve hierarchical source categories and GloED detects a potential source category overlap, a message box will appear informing the user of the source overlap (Figure 18).

After the combined scenario has been generated, the user can view the result using the thematic mapping feature of GloED, by creating a pie chart, by creating a bar chart. The user can export the combined scenario to a Lotus 1-2-3 file. However, combined scenarios cannot be edited as other regular scenarios. At present, reports cannot be generated from the combined scenarios.

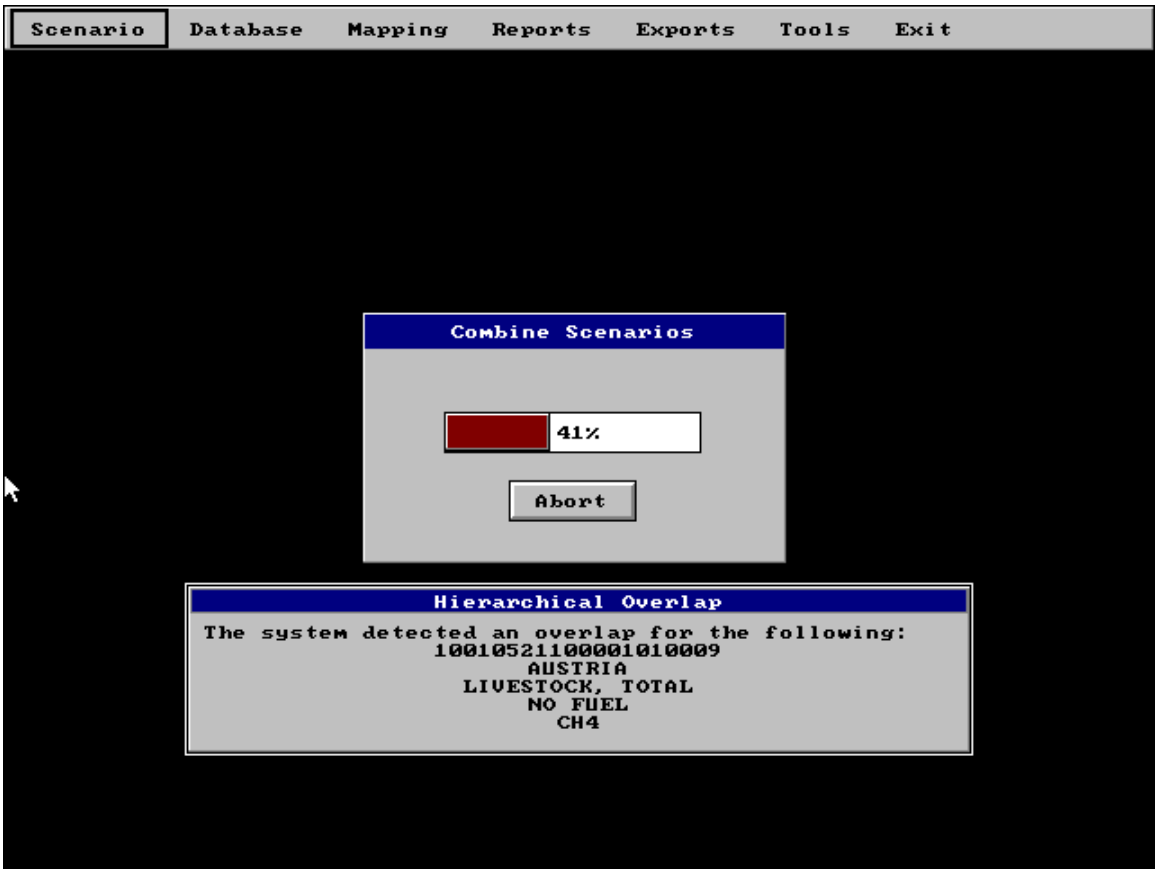

Figure 18. Hierarchical Source Category Overlap Message

Editing a Scenario

- This option allows you to **Edit** an existing scenario. Select a scenario from the list and the **"Select a Scenario to Edit"** dialog box will appear for you to make the desired changes (Figure 19).

  1 Select **Scenario** from the **Main Menu**.

  2 Select **Edit** from the pull-down menu.

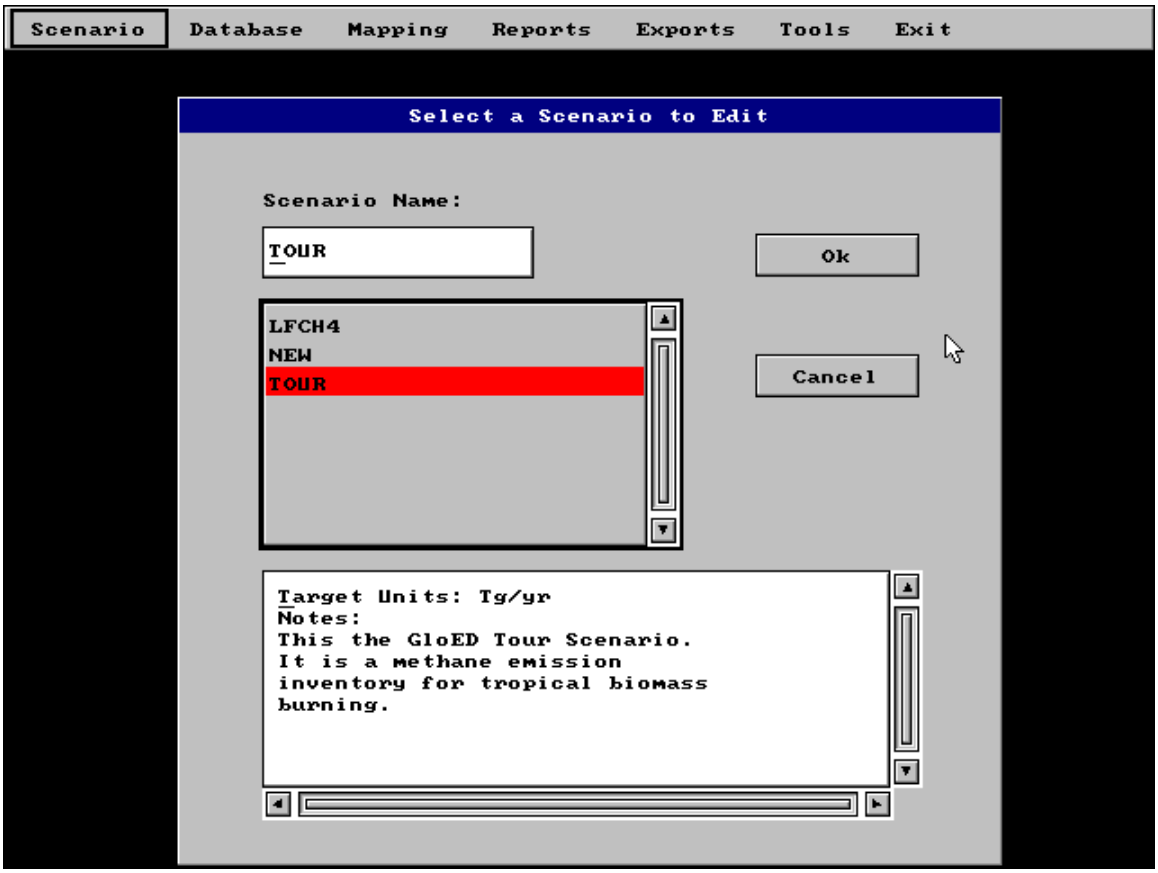

Figure 19. Select a Scenario to Edit

3 Select the scenario to edit from the list box.

4 Select **[OK]**.

A dialog box similar to the one employed to generate scenarios will be displayed (Figure 20). The user will note that only the dataset that is included in the scenario being edited shows up as selected. To edit the scenario, the user must select data selections included in the scenario they want to modify: country, sector, fuel, or pollutant. Note that scenarios generated through the **Combine Scenarios** feature cannot be edited. The user must edit the component scenarios and combine the edited individual scenarios.

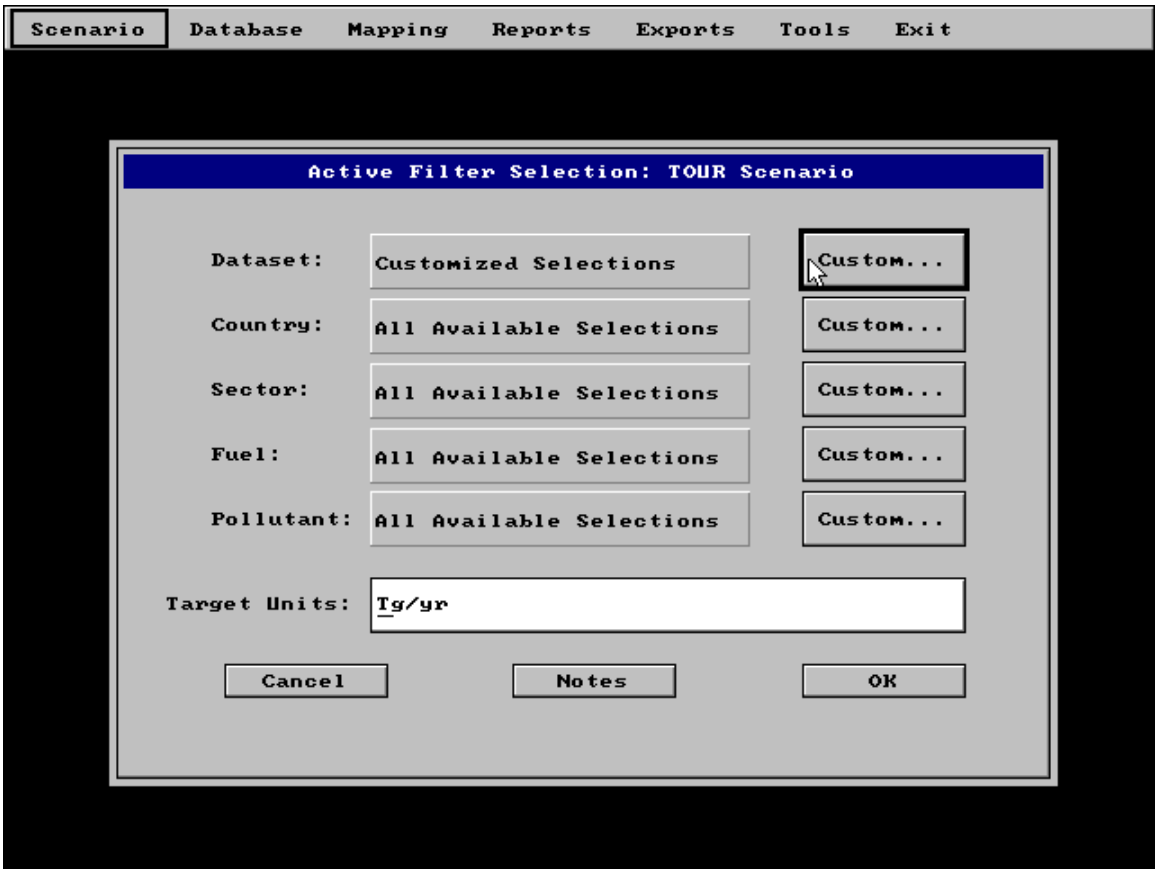

Figure 20. Scenario Edit Active Filter Selection

For the purposes of this example, the editing will be performed on the country selection.

5 Select **Country/[CUSTOM]**.

6 Select (de-select) several countries [i.e., Albania, Algeria, and Angola].

7 Select **[OK].**

8 Select **[OK]** at the **"Active Filter Selection"** dialog box.

The user has now edited the scenario. The modified scenario does not contain the countries that were removed during the edit process. A subsetting maindata message will appear indicating that GloED is processing the edited scenario just completed by the user.

☞ ***NOTE: Any data recalculations resulting from an edit will not appear in a previously generated text report. The user must regenerate this report after editing a scenario.***

Deleting a Scenario

To delete an existing scenario, select **Scenario/Delete**. Select a scenario name from the list box (Figure 21). Select **[OK]**. This will delete the scenario that you selected from the GloED directory.

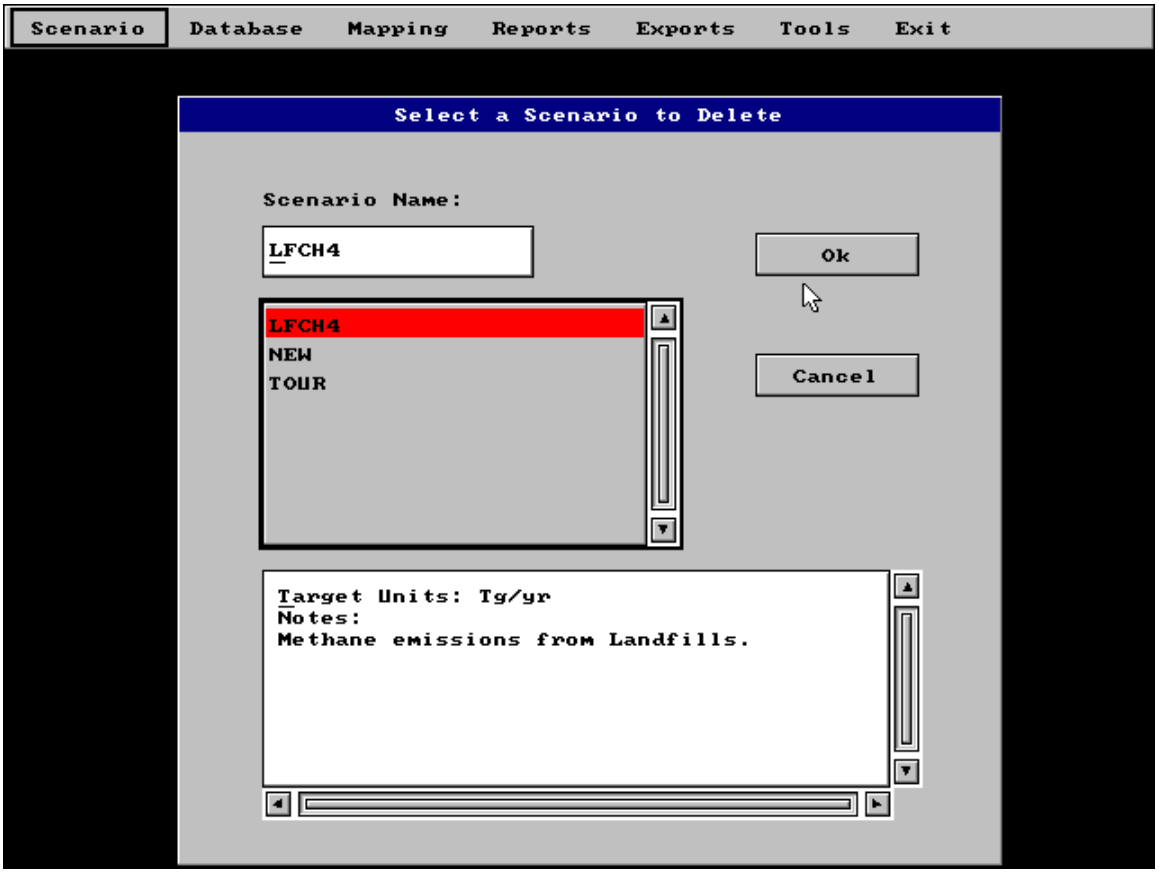

Figure 21. Delete a Scenario

- The steps for deleting a scenario are as follows:

  1 Select **Scenario** from the **Main Menu**.

  2 Select **Delete** from the pull-down menu.

  3 Select the scenario to be deleted from the list box.

  4 Select **[OK]**.

☞ ***REMEMBER: GloED does not ask for a confirmation of your choice, so be sure that this is what you want to do before selecting the [OK] button.***

You can perform a variety of functions in the **Database** option from the **Main Menu**. By selecting the **Editor** option in the dialog box, you can supplement the GloED dataset library with datasets and additional data points of your own **[ADD]**, you can edit **[MODIFY]** existing data, or you can delete existing data **[DELETE]**. You can also familiarize yourself with the database by browsing through existing data **[SEEK]**. Additionally, the **Database** dialog box offers you the option to **Rebuild** GloED and check for data completeness.

☞ ***If you must reboot your system for any reason, rebuild the relationships in the database using the Rebuild option before continuing. If the system locked up when the files were in an intermediate state, rebuilding is necessary to reestablish the linkages among the files.***

Beyond serving as a data repository, GloED calculates emission inventories by multiplying a source activity and an appropriate emission factor. A dataset associates activities with emission factors in such a way that GloED can use the combined information to generate emission inventories. Activities are expressed in the datasets as numerical values that define the volume, throughput, or load capacity of a pollutant emitting process. Emission factors define the rates of pollutant emissions for a given emission source corresponding to some defined unit of activity (e.g., tons/activity unit). For example, an emission factor is the amount of emissions of some pollutant per unit of activity process for that source (e.g., tons of methane per ton of coal produced), and the corresponding activity could be the number of tons of coal produced per year. Combining activity values with emission factors results in an emissions estimate for that activity for a defined period of time (e.g., tons/yr). Emission factors can be specific to a country, sector, and pollutant, or they can be specific only to a sector and a pollutant and, therefore, be independent of a country.

Each dataset in GloED is generally the result of a single study or data collection effort. Datasets are identified as individual entities in order to allow the user to identify the source of the data and classify it on the basis of the type of data collection effort that produced it. Therfore, when you generate a scenario the countries, source categories, and pollutants in the scenario depend upon the datasets that you have chosen to define in that scenario.

If you select **Database/Editor** from the **Main Menu**, the **"GloED Database Editor"** dialog box will appear (Figure 22). This is the most complex dialog box you will encounter while using GloED, in terms of the subsequent number of dialog boxes it will allow you to access.

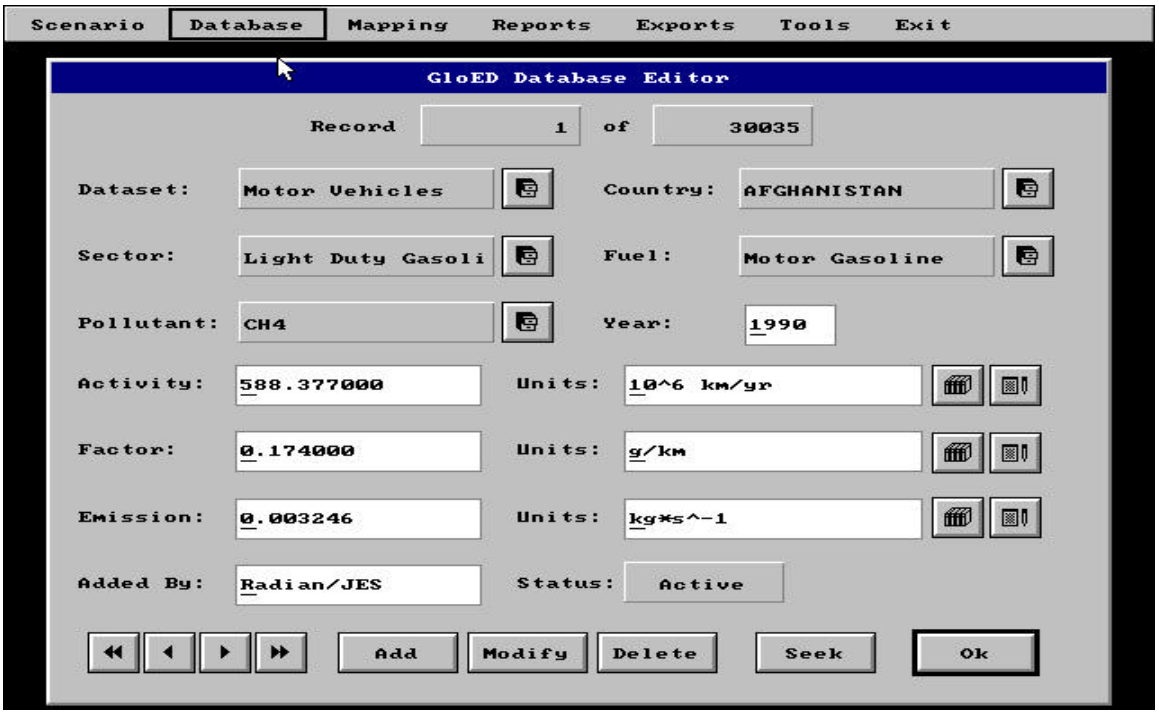

Figure 22. GloED Database Editor

The user must define GloED data elements in order for GloED to use the data elements to construct emission inventories or to store data correctly. You define data elements in the **"GloED Database Editor"** dialog box by selecting them. Data elements that require definition include: **"Dataset," "Country," "Sector," "Fuel,"** and **"Pollutant."**

Defining a Dataset

At the top of the **"GloED Database Editor"** dialog box, you will see a notation indicating the record number of the dataset entry you are viewing. When the **"Database Editor"** dialog box first appears it will be on Record 1, which for this example identifies some emissions data from the **"Motor Vehicles"** dataset. Select the button corresponding to **"Dataset"**--the button has an icon representing file drawers in a filing cabinet. A dialog box entitled **"Dataset Entry"** will appear (Figure 23). This dialog box will identify the **"Short Name"** and **"Long Name"** of the dataset corresponding to the information in Record 1. Select the **"Long Name"** field and use the right arrow key **[→]** to move the cursor to the right so that you can see the entire description of the dataset. A list box allows you to change the dataset. When you select a new dataset, that name appears in the **"Name"** field. To return to the **"Database Editor"** dialog box, select **[CANCEL]** for GloED to ignore your entry or **[OK]** to add the new entry.

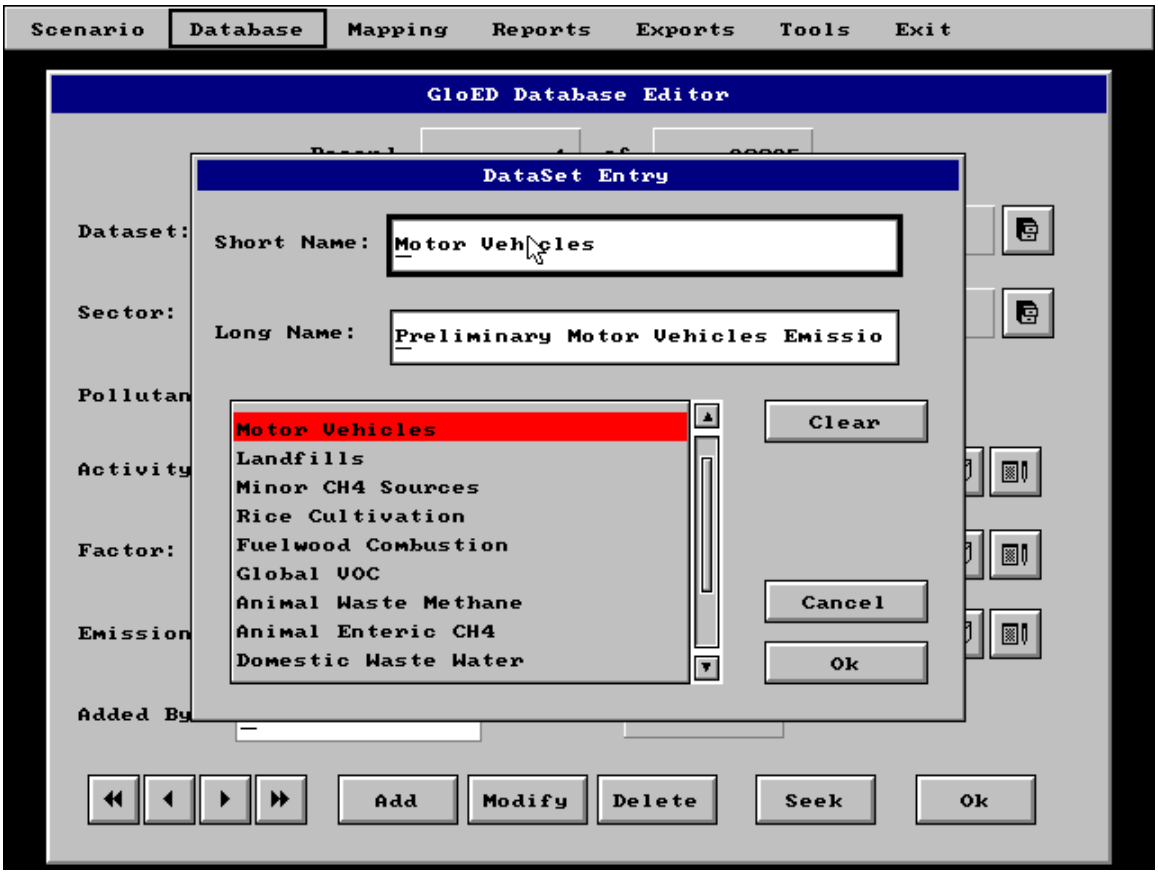

Figure 23. Dataset Entry Dialog Box

Defining a Country

Each data point for an activity, emission, or emission factor must be defined as to its place of origin--that is, a country, region, latitude, or other similar descriptor. Select **Country"** from the **"Database Editor"** dialog box. The **"Country Entry"** dialog box will appear (Figure 24). The list box lists the countries of the world. You will want to select one from that list. When you select a country name from the list box, that name will appear in the **"Name"** text box. There are also text boxes for entering information on **"Population," "Population Year," "Gross Domestic Product (GDP)," and "GDP Year,"** should those data be available. Geopolitical entities are not static, however, and if you have data for Uzbekistan, for example, and wish to distinguish it as a region or sovereign, you need to select **[NEW]** from the country list box, select the **"Name"** text

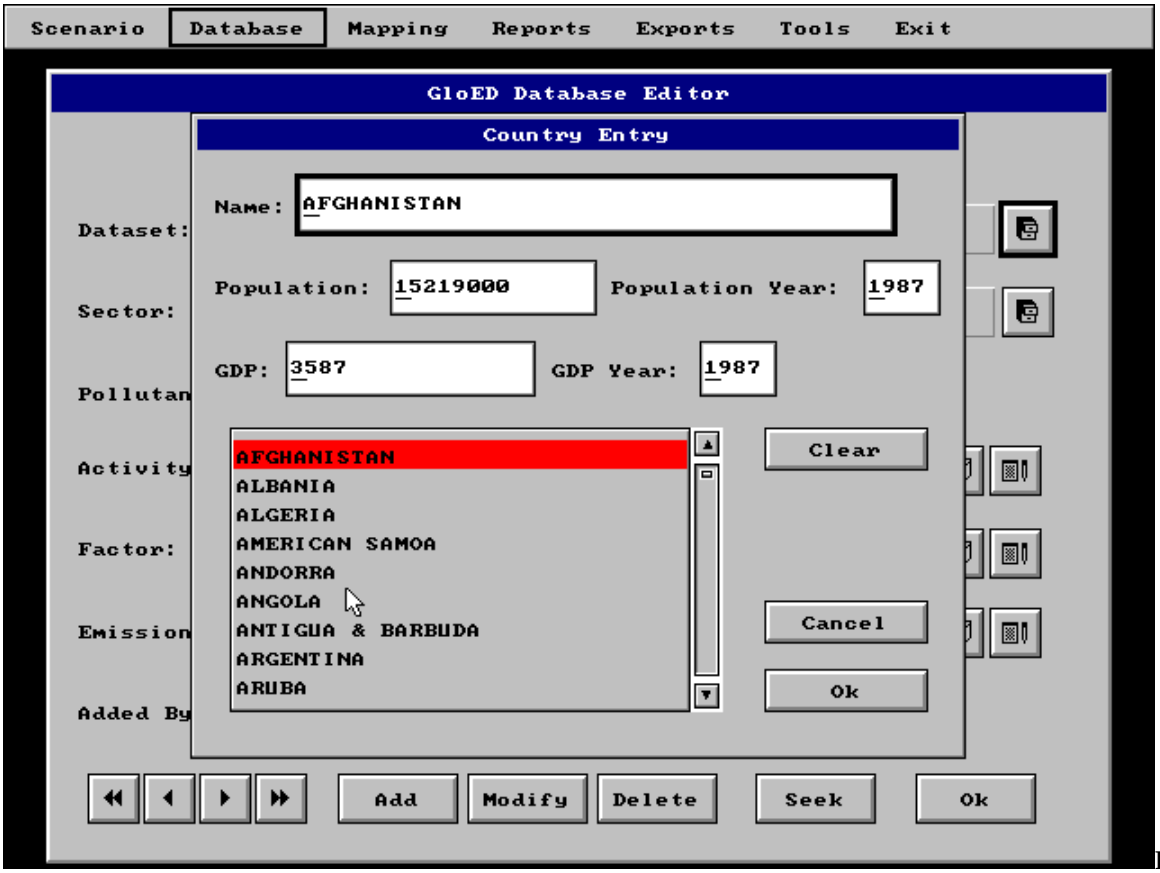

Figure 24. Country Entry Dialog Box

box, and type ***Uzbekistan*** in the text box, since Uzbekistan does not currently exist as a selection in the list box. To return to the **"Database Editor"** dialog box, select **[CANCEL]** for GloED to ignore your entry or **[OK]** to add the new entry.

Defining a Sector

Select **"Sector"** in the **"Database Editor"** dialog box. The **"Source Category Entry"** dialog box appears (Figure 25). This dialog box allows you to examine the "parent-child" hierarchy of the source categories, select source categories, or add new source categories to the hierarchy. While in Record 1, the **"Source Category Entry"** dialog box **"Short Name"** text box will indicate that the record is defined for the category called **"Light-Duty Gasoline Vehicles."** You can select the **"Long Name"** text box and then use the right arrow key **[→]** to move through the entire **"Long Name"** description.

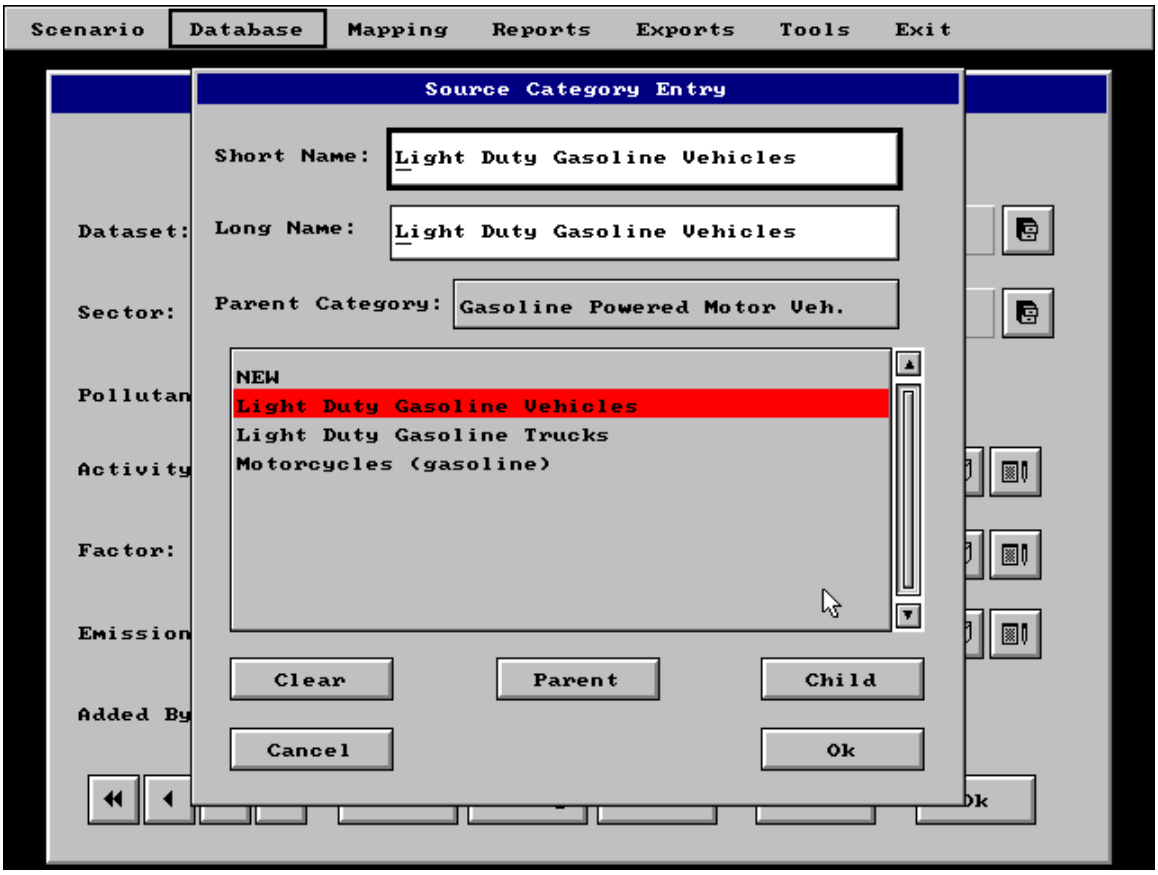

Figure 25. Source Category Entry Dialog Box

Select **[CHILD]**. Note that for this example the fields for the **"Short Name"** and **"Long Name"** descriptions become vacant. The list box now lists all the "children" under the **"Light-Duty Gasoline Vehicles"** category (see Figure 25). You now know that you are at the bottom of the available selections in the hierarchy because the only selection in the list box indicates **"NEW."** There are no more "children" unless you add a new "child" to the category (Figure 26). To enter a new sector name not shown in the current list, select **[NEW]** to clear the **"Name"** text box or select **[CLEAR]**. To return to the **"Database Editor"** dialog box, select **[CANCEL]** for GloED to ignore your entry or **[OK]** to add the new entry.

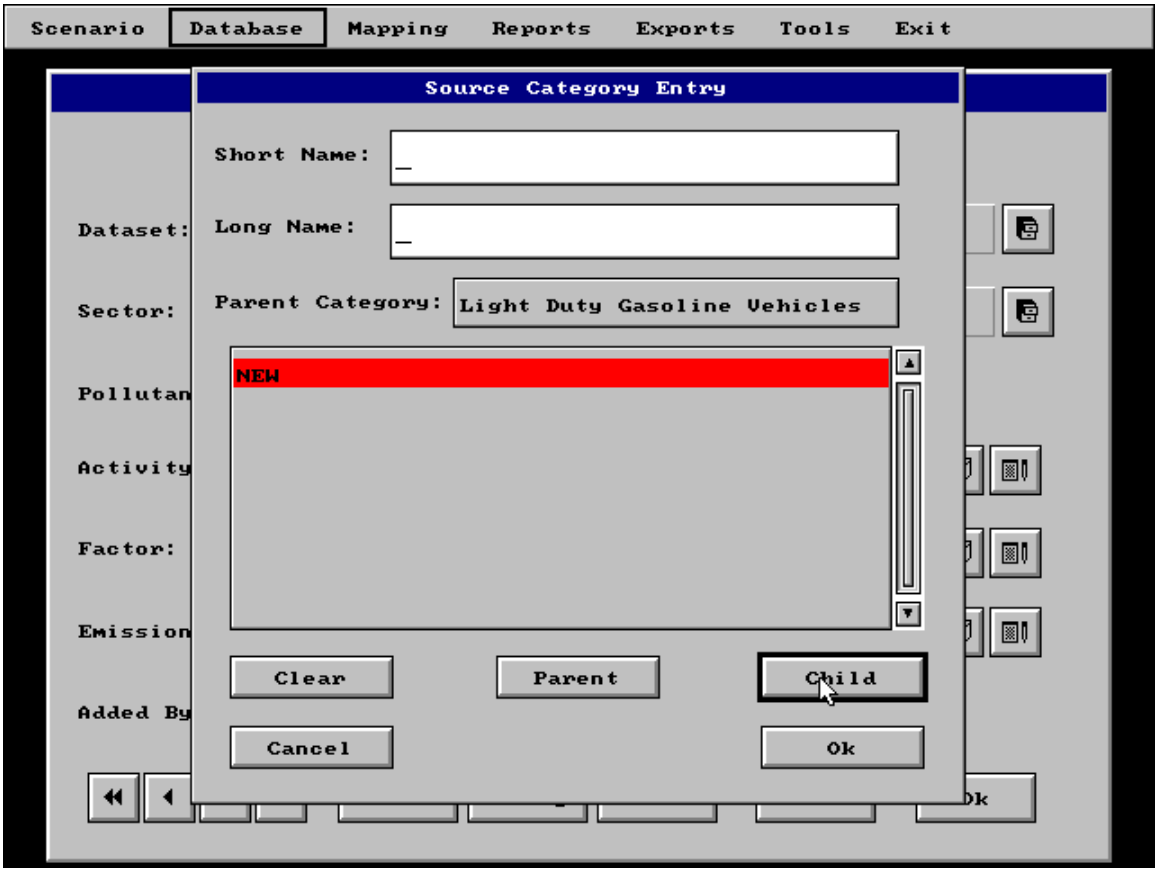

Figure 26. Source Category Children

Defining a Fuel

Fuels are also defined hierarchically in a "parent-child" scheme. Select the file drawer button corresponding to **"Fuel."** The **"Fuel Type Entry"** dialog box appears (Figure 27). While in Record 1, **"Motor Gasoline"** is the fuel type indicated for that record. Notice that the **"Parent Fuel"** indicated is **"Liquid (Oil & Byproducts)."** Select **[CHILD]**. Note that for this example there are no "children," indicating that you have reached the bottom of the hierarchy (Figure 28). To return to the **"Database Editor"** dialog box, select **[CANCEL]** for GloED to ignore your entry or **[OK]** to add the new entry.

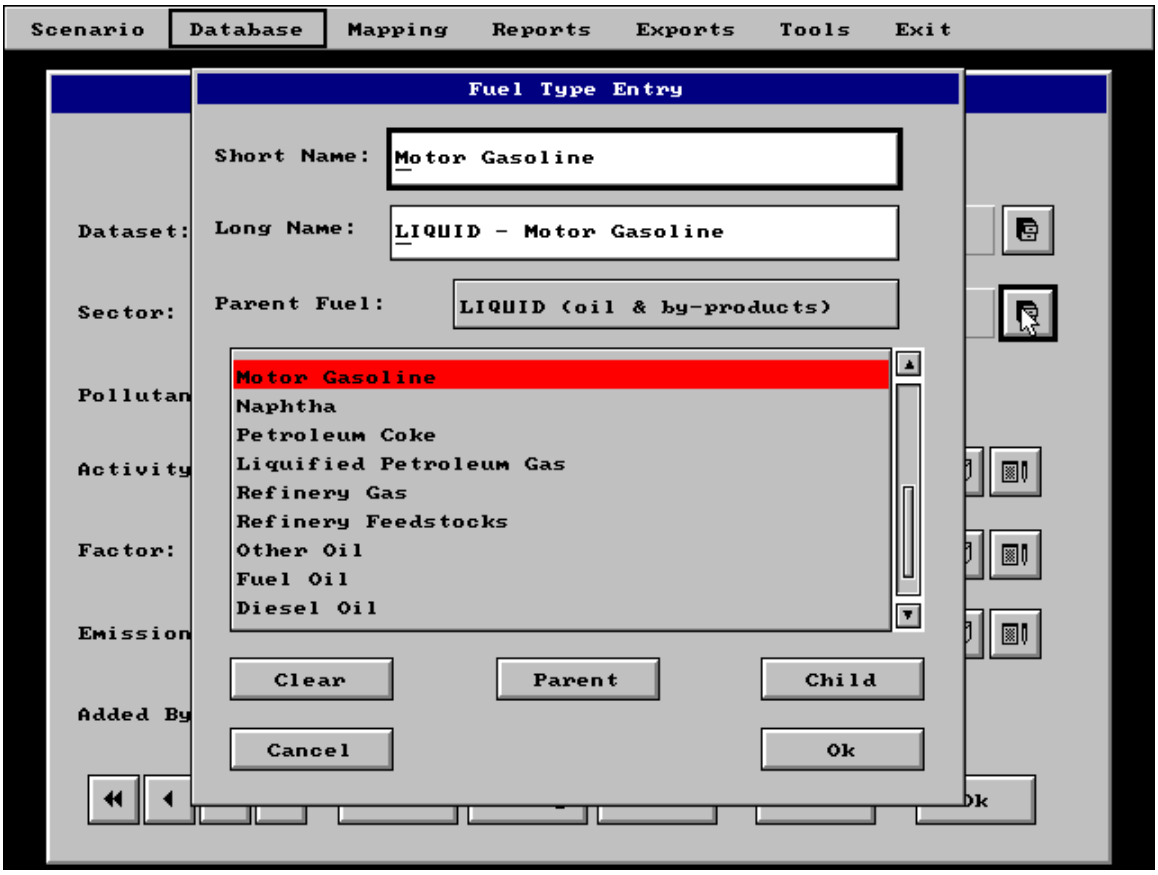

Figure 27. Fuel Type Entry Dialog Box

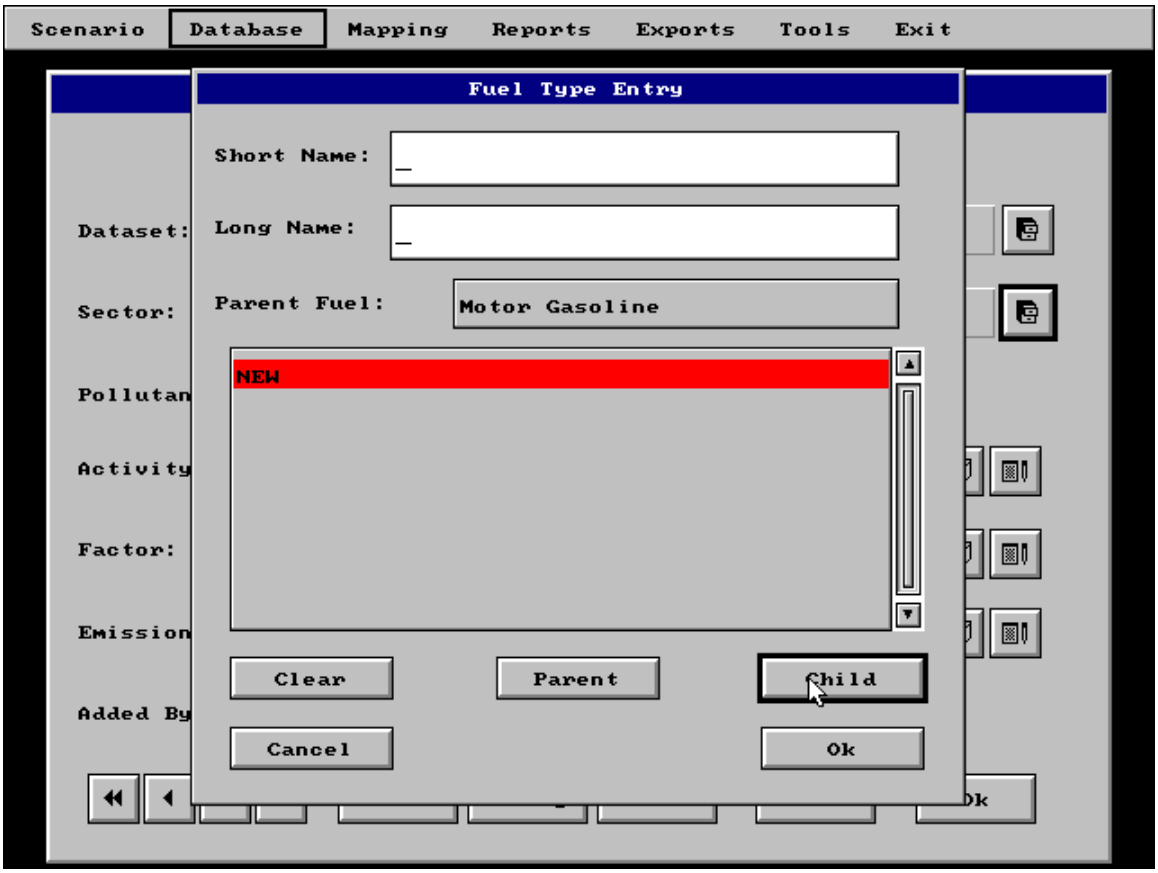

Figure 28. Fuel Type Entry--Bottom of Hierarchy

☞ ***NOTE: For some sources, such as livestock, the fuel category to be selected is "No Fuel."***

Defining a Pollutant

Select **"Pollutant"** and the **"Pollutant Entry"** dialog box appears (Figure 29). Methane is the pollutant currently defined for the emissions data in Record 1 for this example. To review the list of pollutants, select the list box and move to the top and bottom of the list of pollutants. Note that there is a category at the top of the pollutant list called **"NEW."** To enter a new pollutant name not shown in the current list, select **[NEW]** to clear the **"Name"** text box or select **[CLEAR]**. To return to the **"Database Editor"** dialog box, select **[CANCEL]** for GloED to ignore your entry or **[OK]** to add the new entry.

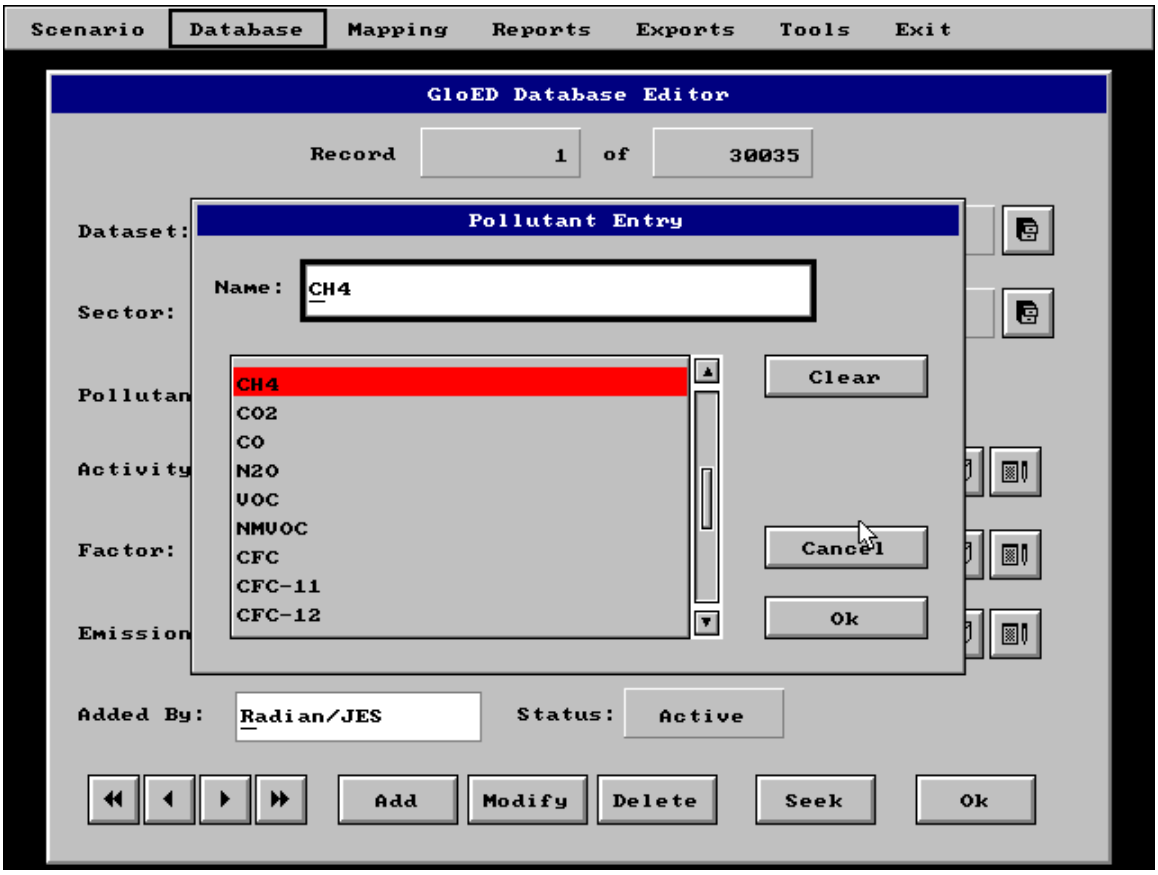

Figure 29. Pollutant Entry Dialog Box

Seeking Data

The **[SEEK]** function allows you to move rapidly through the database to find records containing specifically defined data elements. The **"Database Editor"** dialog box will indicate the record number you are working in.

To move incrementally through the GloED database records, the **GloED Editor** provides a set of specialized buttons in the lower left corner of the dialog box. These four buttons have right and left pointing arrows on them. The double arrow buttons provide a fast forward **[>>]** and a fast reverse **[<<]** through the database. The longer they remain selected, the faster they move through the database. The single arrow buttons provide single record forward **[>]** and single record reverse **[<]** through the database (Figure 30).

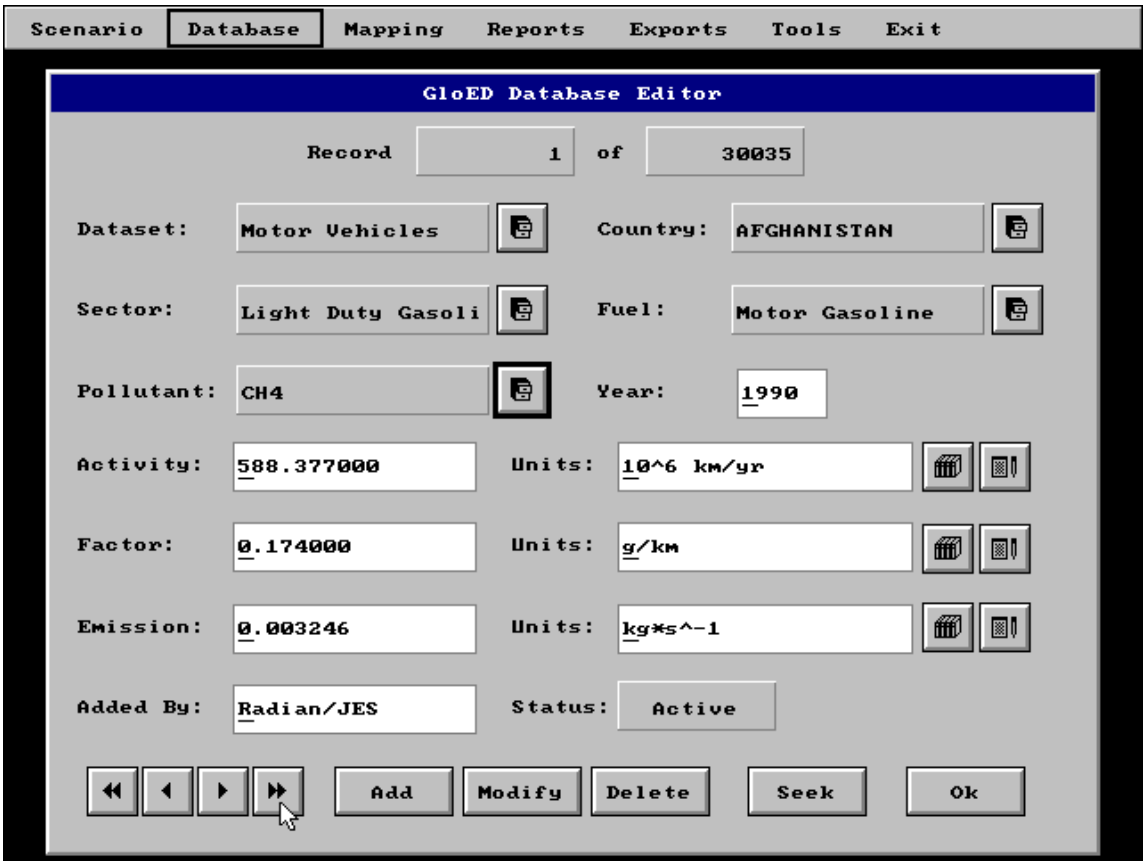

Figure 30. Arrow Buttons

At times, you may want to compare the data in one dataset with the data in another. All of the datasets in GloED are contained within the same database. Finding where one dataset stops and another starts would be a time-consuming process if you were to move through the data one record at a time. The **[SEEK]** function allows you to find the next record in a dataset that most closely matches the data elements you have selected in your dialog box.

Seeking Data--An Example

■ Record 1 contains a value for methane emissions for motor vehicles in Afghanistan. To see if there is similar information for methane emissions from motorcycles in Vanuatu, follow these steps.

1 Select the file drawer button corresponding to **"Country."**

2 Select **[VANUATU]** from the **"Country"** list box.

3 Select **[OK]**. Notice that "Vanuatu" now appears in the **"Country"** text box.

4 Select the file drawer button for **"Sector"** and select **[MOTORCYCLES (gasoline)]/[OK]**.

5 Select **[SEEK]**. Note that the record counter has changed.

A message will appear on your screen indicating **"Exact Record Not Located"** (Figure 31). This occurred because GloED searched through the database for the dataset defined as "Motor Vehicles" for "Vanuatu" and, specifically, for "Motorcycles." GloED then began searching for a match to the other data elements as they were defined in the previous record on the dialog box. An exact match for all of the elements could not be found.

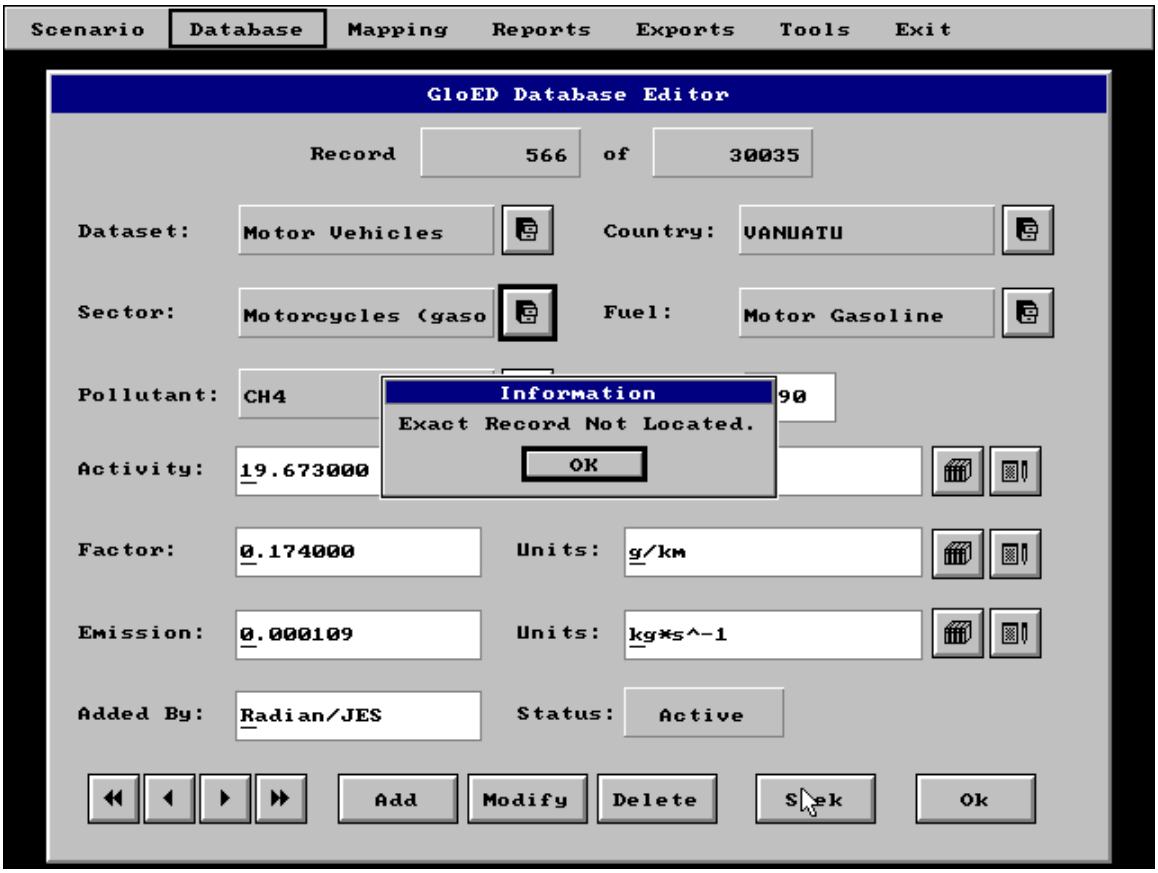

Figure 31. Seek Exact Record Not Located

6 Select **[OK]** in the information message. Notice that the record number changed, as did the data element definitions. GloED was not able to find a match for the "Sector" data element of "motorcycles." GloED stops searching when it first arrives at a matching data element. If there had been absolutely no matching elements for any of the fields, GloED would have displayed the **"Exact Record Not Located"** message and would have remained on the previous record.

7 Select **[OK]** to return to the **Main Menu**.

Adding Data

New data can be added to an existing dataset or to new datasets in the **Database/Editor** option through the **[ADD]** button. An important consideration to remember is that duplicate records should not be added to an existing dataset. An example of a duplicate record is a record that has exactly the same data element definitions as an existing record, including the same name for the **"Dataset," "Country," "Sector," "Fuel," and "Pollutant" fields, but has a different value for an activity, an emission factor, or an emission**. In a case where you have different data values for equally defined data elements, a new dataset should be defined or the duplicate record should be deleted.

Adding Data--An Example

■ For this example, add new data for N_2O emissions from fuelwood use in Afghanistan by following these steps.

1 At Record 1, select **[ADD]** (Figure 32). Notice that the exact data element definitions are completely copied to a new record number and added to the end of all the records.

2 To add new data, select the file drawer corresponding to **"Pollutant."**

3 Select **[N_2O]** from the list box.

4 Select **[OK]**.

5 Select the **"Emissions"** text box and delete the existing value using the **[DEL]** key on your keyboard.

6 Enter a new value.

7 Select the **"Sector"** field and select **[Parent]/[Parent]/[Fuelwood Utilization]/[OK]**.

8 Select the **"Fuel"** text box and select **[Parent]/[Biomass]/[Child]/[Wood]/[OK]**.

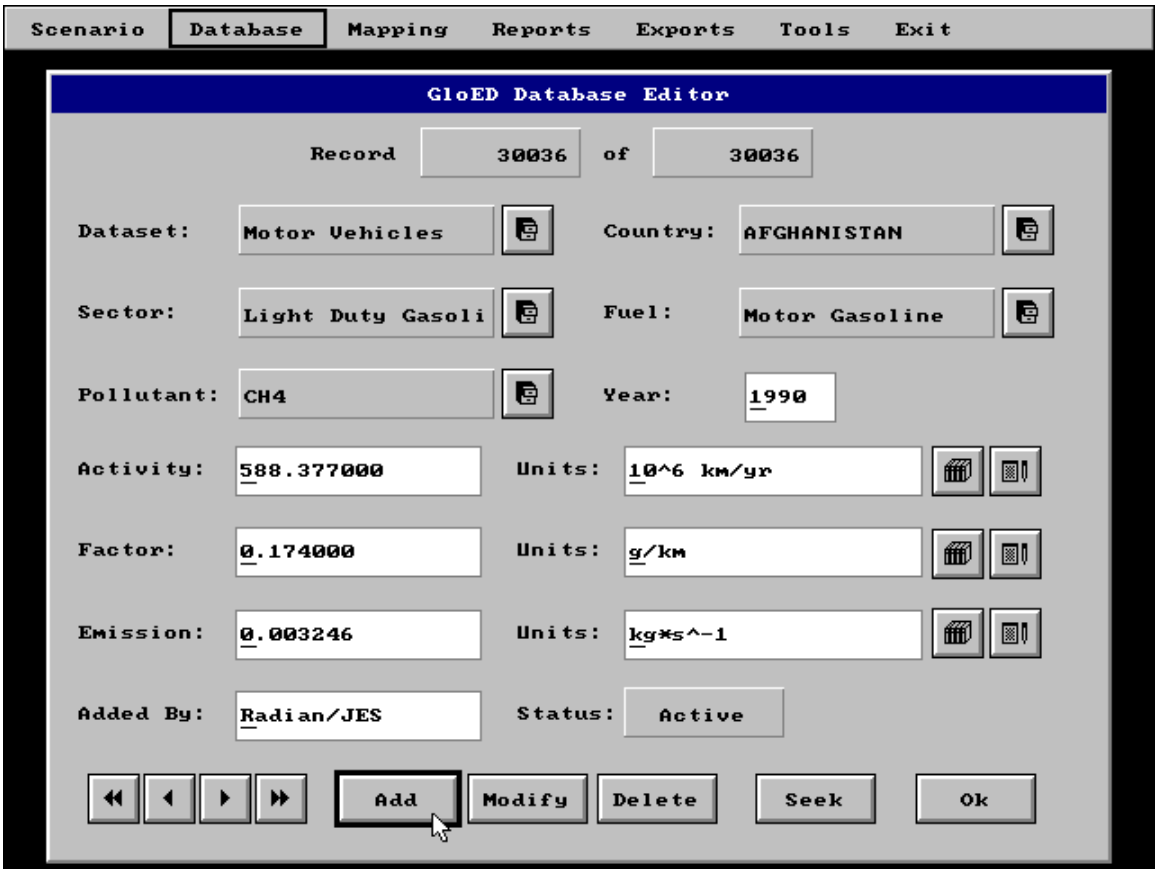

Figure 32. Adding a Record

9 To save the changes you have made to your newly added record, rather that just copying the record (and creating a duplicate record), you must select **[MODIFY]**. This modifies the record to accept or save the changes you made to the pollutant and to the emission value. Now, you have added a new record.

10 Use the single record reverse button **[<]** to decrease the record number by one.

11 Move back to the record you just added to see that your changes are there.

Modifying Data

Modifying data is an editing feature in the **Database/Editor** option of GloED that can be used to change the information contained in a record when the information is found to be erroneous or needs to be updated. The modify function is also used to save added records.

Modifying Data--An Example

■ For this example, correct an error in the emission factor for the record added above (Figure 33). The current emission factor is 0.174 g/km, and the correct value is 0.175 g/km. To modify the record, follow these steps.

1 Select the **"Factor"** text box.

2 Delete the existing value using the **[DEL]** key on your keyboard.

3 Type in the new value, ***0.175***.

4 Select **[MODIFY]**. Your modification of the record is complete.

5 Use the arrow keys **[←][→]** to move to Record 2 and then back to Record 1 to see that your change was saved.

6 Select the **"Factor"** text box.

7 To restore the original emission factor, follow Steps 1-6 and replace 0.175 g/km with 0.174 g/km.

8 Select **[OK]** to return to the **Main Menu.**

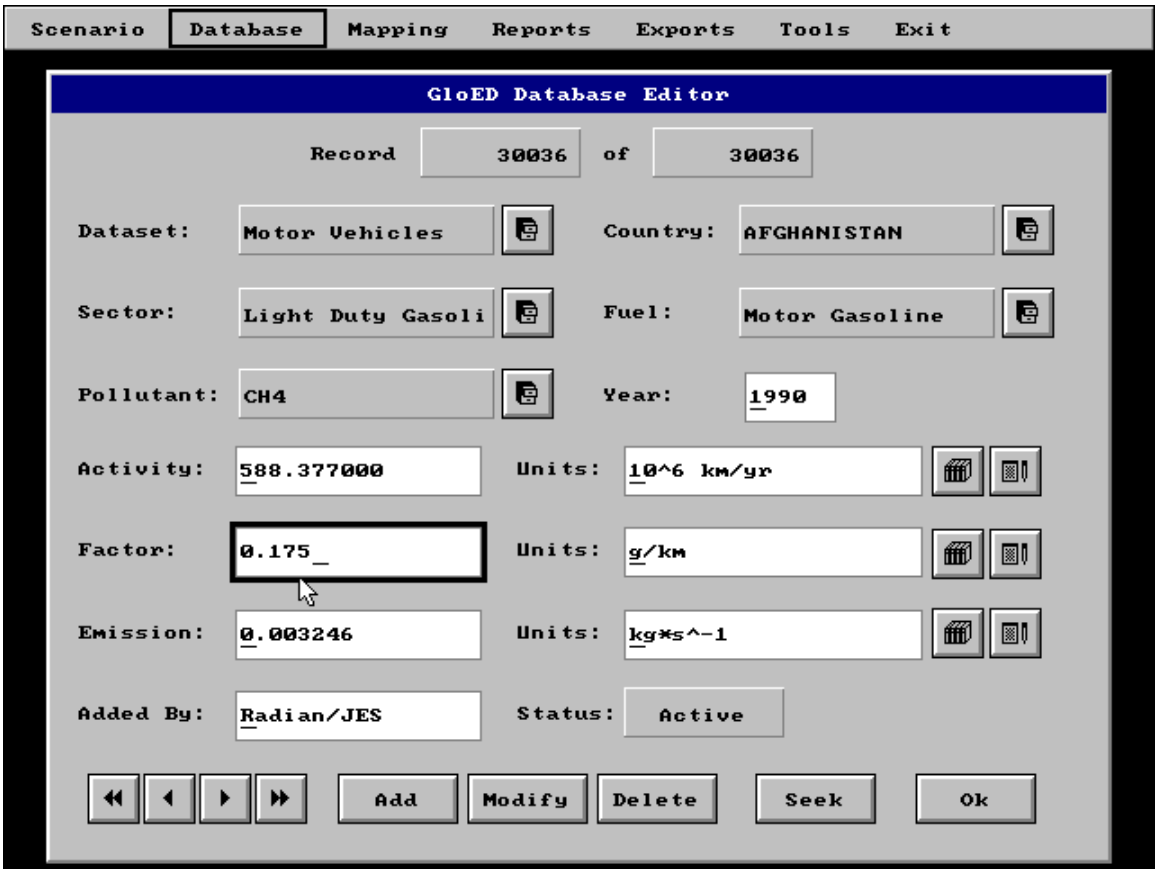

Figure 33. Modifying a Record

Deleting Data

Data can be deleted from the existing dataset with the **[DELETE]** button from the **Database/Editor** option.

Deleting Data--An Example

■ To delete the record you previously added, follow these steps.

1 While on the record you added, select **[DELETE]**. Notice that the **"Status"** field changes from **"Active"** to **"Deleted"** (Figure 34).

2 Select **[OK]**.

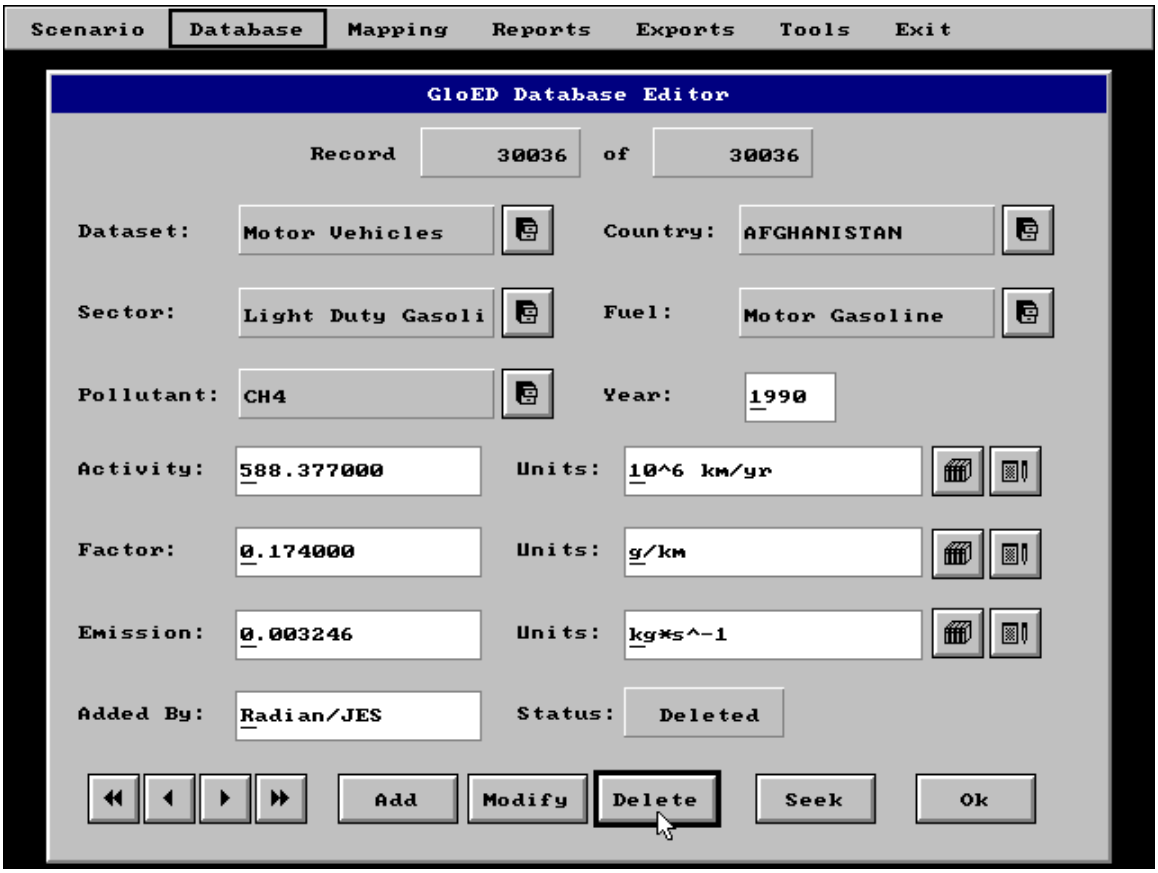

Figure 34. Deleting a Record

3 A message will appear indicating **"The system databases are currently being rebuilt to remove deleted information. Please wait..."** (Figure 35). When the message disappears, select **Database/Editor**. Note that the record you added is no longer in the database, as indicated by the record number counter at the top of the dialog box.

☞ ***You should be very careful when deleting data. Always keep a backup copy of your database from every working session with GloED, so that you will not destroy data by accident. Data in GloED is stored in files with the extensions .dbf, .ndx, and .dbt.***

---

4 Select **[OK]** to return to the **Main Menu.**

Figure 35. System Databases Are Being Rebuilt

MAPPING

You must generate or load a scenario before you can map it, create reports, or export it. If you have not entered a scenario and select **Mapping** from the **Main Menu**, a message will appear indicating that you must introduce a working scenario (Figure 36).

Figure 36. No Working Scenario Error Message

Creating a Map

Once you have generated or loaded a scenario, GloED calculates an emission inventory for it. You can then create a thematic map that reflects the results of that inventory. When you select **Mapping** from the **Main Menu,** the **"Title Entry"** dialog box will appear (Figure 37). Select the **"Title 1"** text box and enter the main title to appear at the top of your map. If you indicated your **"Target Units"** when you defined your scenario, you will notice that the **"Title 2"** text box automatically contains those units. You may change the **"Title 2"** text box to

reflect something other than units, if you wish. After entering your titles, select **[OK]** and GloED will map the scenario (Figure 38).

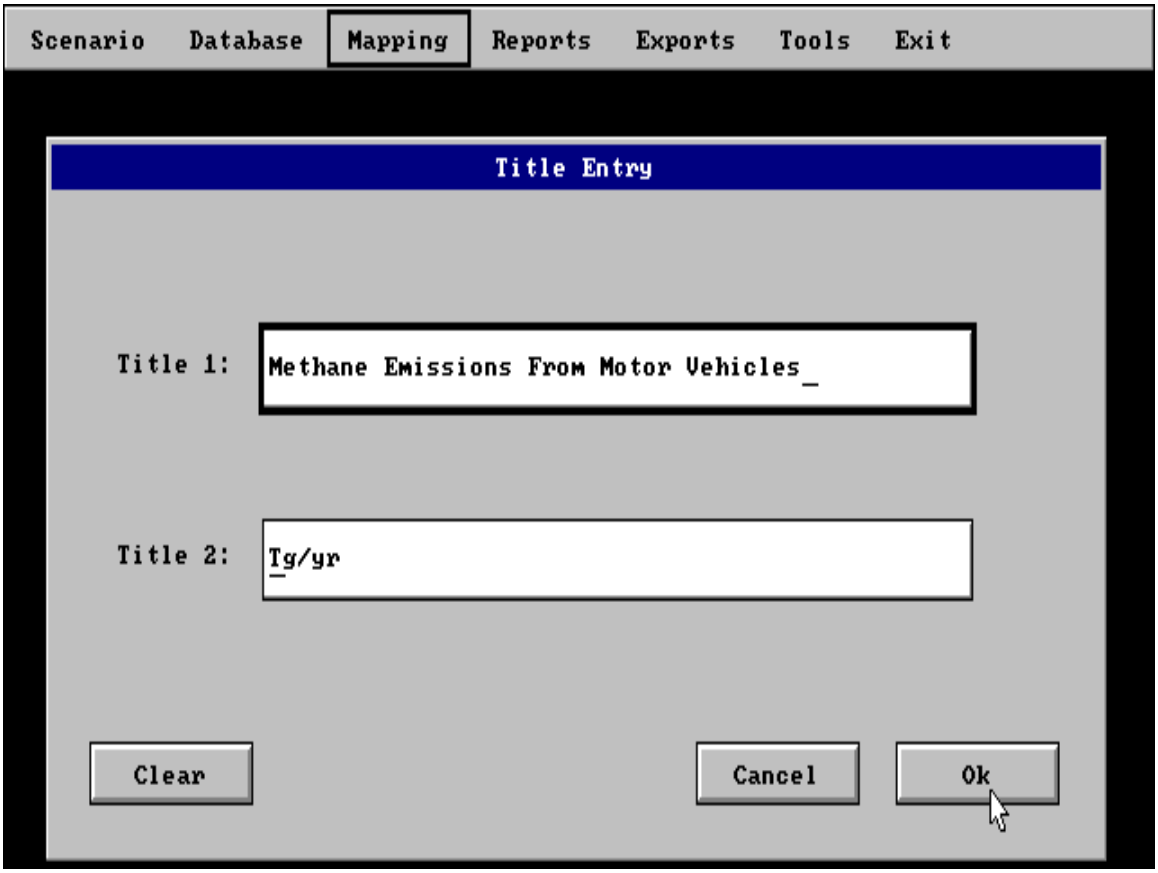

Figure 37. Mapping Title Entry

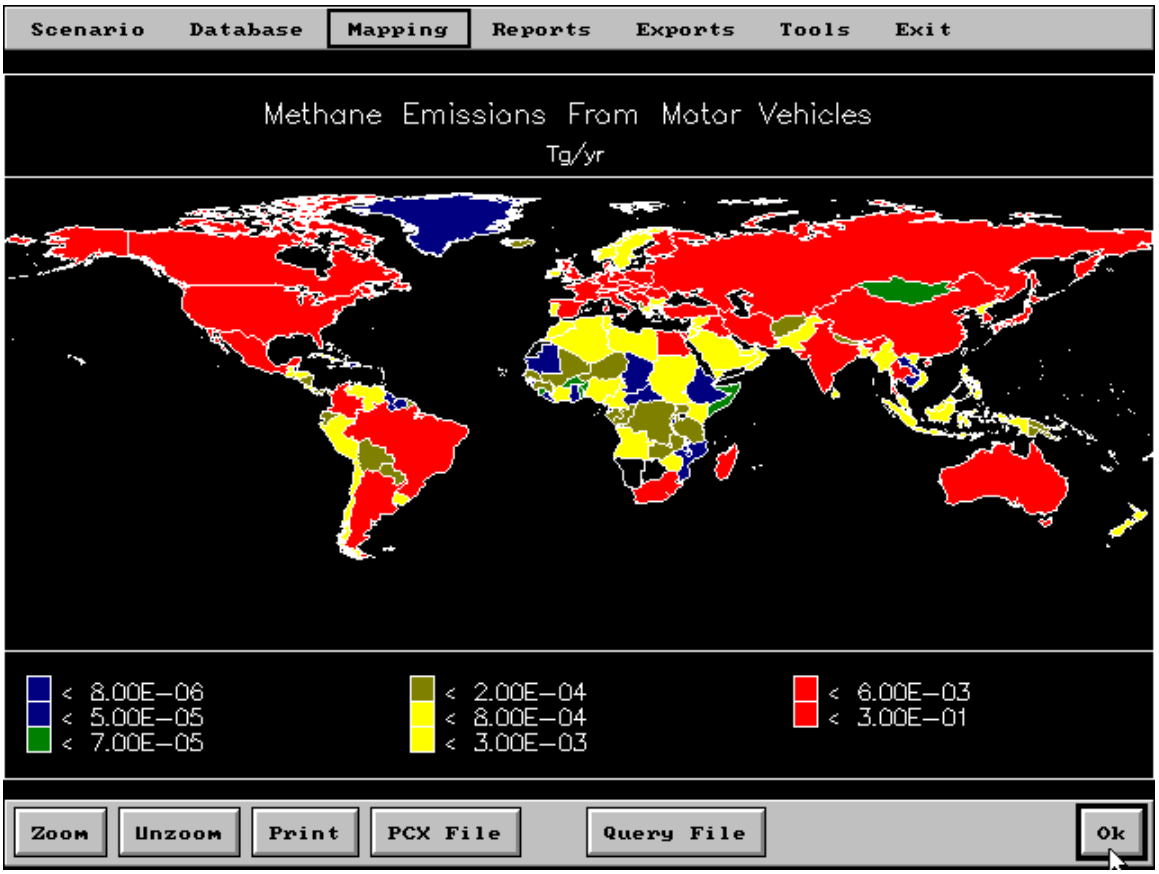

Figure 38. On Screen Map

At the bottom of the map, there are map control buttons allowing the following options: **[ZOOM]**, **[UNZOOM]**, **[PRINT]**, **[PCX FILE]**, **[QUERY FILE]**, and **[OK]** (see Figure 38).

Creating a Map--An Example

■ To create a map from the scenario you previously created, follow these steps.

1 Select **Scenario/Load** from the **Main Menu**. Proceed and load the "Motor Vehicles" scenario previously generated in the Chapter 3 generate example.

2 Select **Mapping** from the **Main Menu**. A **"Title Entry"** dialog box will appear.

3 Select the **Title 1** box and type in a title such as ***Methane Emissions from Motor Vehicles for all Countries***. Notice that the units you specified when generating the scenario (Tg/yr) appear in the **Title 2** box.

4 Select **[OK]**.

A map will be generated showing methane emissions from motor vehicles worldwide. GloED generates the emission ranges for mapping purposes to maximize color differentiation between countries.

☞ ***Note that if GloED detects that a mouse driver is loaded in memory, the special keyboard pointer functions will not operate in the map facility. These special keyboard pointer functions are ONLY available when a mouse is not present.***

Zooming and Unzooming

GloED's mapping feature allows you to get a closer look at portions of the global map by enlarging selected areas. The **Zoom** function is especially useful for portions of the global map containing many relatively small countries that are difficult to distinguish (as in western Europe and southeast Asia). Two distinct procedures are required, depending on whether the user has a mouse installed or is using the keyboard only with no mouse.

Use of the Mouse with Zoom Map Controls

1 Select the **[ZOOM]** button.

At this time a cross-hair cursor appears in the map portion of the screen (Figure 39).

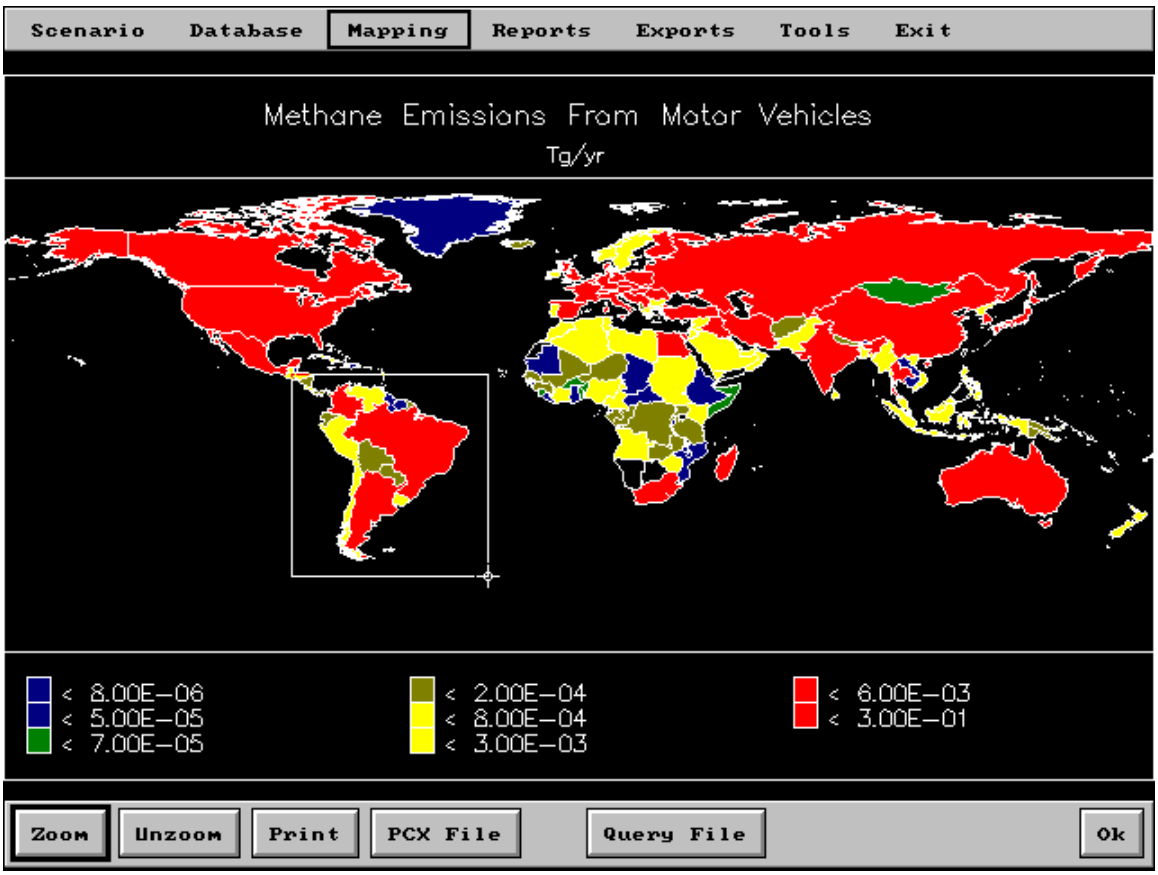

Figure 39. Cross-Hair Cursor and Selected Area

2 Press and hold the left button on the mouse, and move the mouse to select the portion of the map you want to enlarge (see Figure 39). Release the button on the mouse and the selected area will be enlarged (Figure 40).

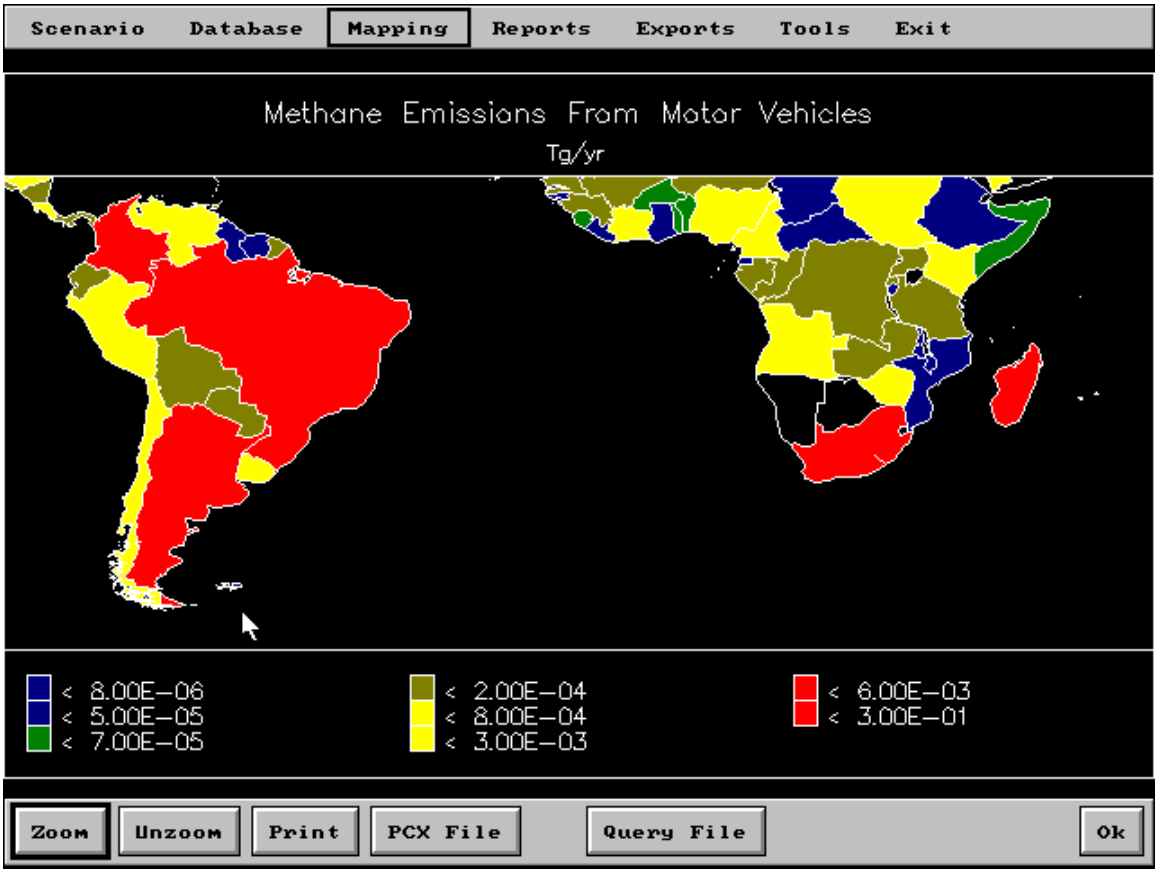

Figure 40. Enlarged Map Area

To reverse the zooming operation, the user needs to select the **[UNZOOM]** button. GloED will redraw the map to its previous scale.

Use of the Keyboard with Zoom Map Controls

The **[OK]** command button has the default focus in the map control at the bottom of the screen. To shift control focus, the **[TAB]** key can be used to shift focus from left-to-right and the **[SHIFT-TAB]** combination can be used to shift focus right-to-left. A step-by-step procedure is outlined below.

Use of the Zoom Feature

1 Shift focus to the **[ZOOM]** command button by using the **[SHIFT-TAB].**

2 Press **[ENTER].**

At this time a cross-hair cursor appears in the map portion of the screen (see Figure 39).

3 The user can use the keyboard to select the portion of the map to zoom. This requires the use of the left, right, up, and down cursor keys for fine positioning, and the combination of the shift key with the cursor keys for "coarse positioning."

4 After the user has positioned the cross-hair cursor to the upper-right corner of the area to zoom in, press **[ENTER]** to "anchor" the position.

5 The user now needs to "stretch" the rectangular region to zoom by again using the cursor key to position the bottom-right corner of the rectangular region.

6 To "anchor" the selection press **[ENTER].**

At this point GloED will redraw the map and zoom the defined region (see Figure 40). Note that the exact region selected might not fit on the rectangular screen area used for the map display. GloED attempts to fit as much of the area as possible in the rectangular map display area.

To reverse the zooming operation the user needs to select the **[UNZOOM]** command button and GloED will redraw the map to its original scale.

Printing a Map

To print the map you have generated, select the **[PRINT]** command button. The **"Output to Printer"** dialog box will appear. You must identify the **"Output Port"** and the **"Device Type"** (printer model) for your system by selecting one item from each list box.

Creating a PCX File

To create a PCX file, select the **[PCX FILE]** command button. The **"Title Entry"** dialog box will appear. Select **[OK]** and the **"Select a PCX Filename"** dialog box will appear. The default name is C:\gloed*.PCX. Select the name of your scenario directory from the left dialog box. Select the text box and replace the **[*]** with the filename you wish to give the PCX file. The PCX file generated will be stored in your scenario directory. Select **[OK]** to map the scenario and save the scenario to a graphics file.

Conducting a Query

You may conduct a query regarding the exact amount of emissions from any country reported in the scenario you have generated by selecting the **[QUERY FILE]** command button at the bottom of the map. (You may do this while in either the **Zoom** or the **Unzoom** modes). Move the cross-hair cursor to the country of interest and select it. A message box will show you the emissions for the selected country (Figure 41).

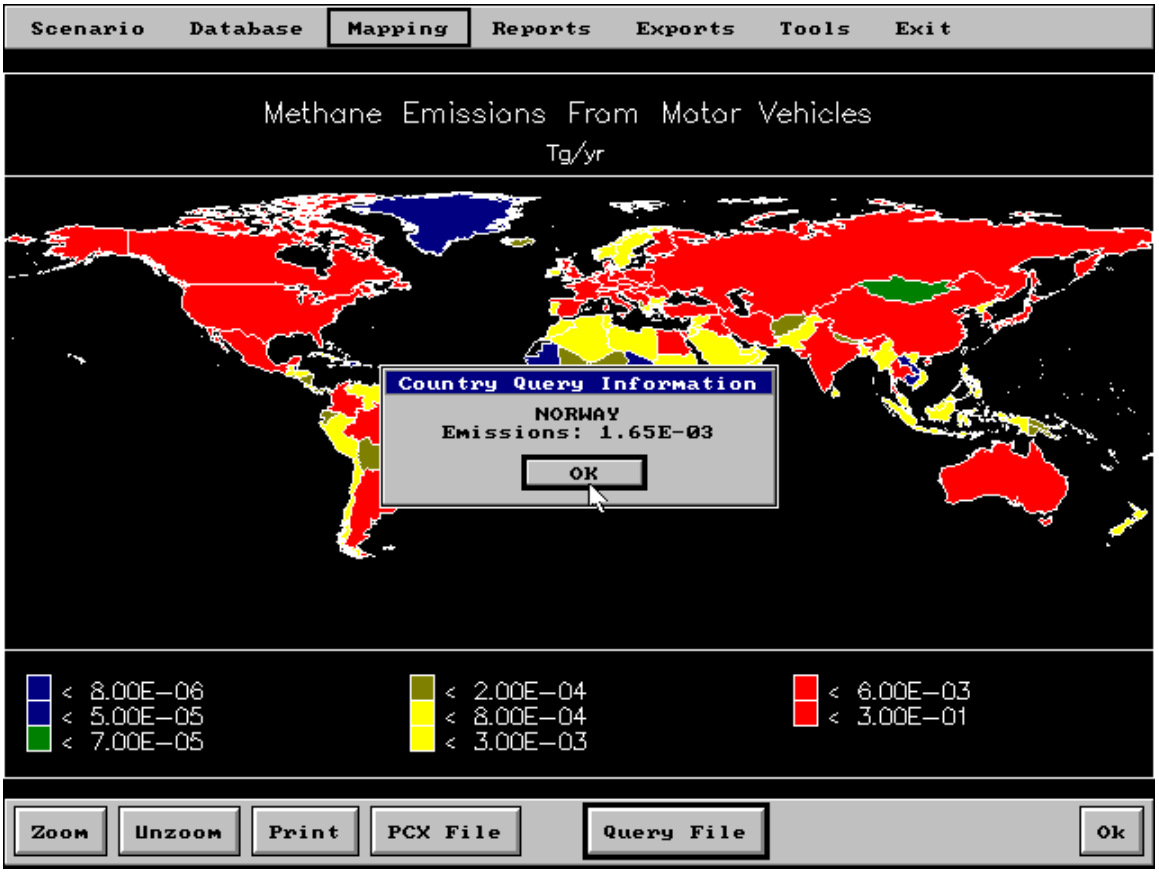

Figure 41. Query Message Box

Press **[OK]** on the map controls to return to the **Main Menu**.

Map Query Using the Mouse

1 Select the **[QUERY FILE]** command button by pointing and clicking.

At this time a cross-hair cursor appears in the map portion of the screen.

2 Position the cross-hair cursor within the country boundaries.

3 Click when the mouse is positioned on the desired country.

A message box will display the emissions associated with the selected country.

4 Select the **[OK]** button in the message box and the focus will shift back to the map controls.

Map Query Using Keyboard Controls

1 Shift focus to the **[QUERY FILE]** command button by using the **[TAB]** or **[SHIFT-TAB]**.

2 Press **[ENTER].**

At this time a cross-hair cursor appears in the map portion of the screen.

3 Position the cross-hair cursor within the country boundaries this requires the use of the left, right and up, down cursor keys for fine positioning and the combination of the shift key with the cursor keys for "coarse positioning."

4 After the user has positioned the cross-hair cursor, press **[ENTER]**.

A message box will display the emissions associated with the selected country.

5 To continue, press **[ENTER]** and the focus will shift back to the map controls.

REPORTS

A pull-down menu under **Reports** from the **Main Menu** offers you three options: **Text, Pie,** and **Bar**.

Generating a Text Report

Under **Report**/**Text,** a right-side pull-down menu offers the options: **Generate, Screen, Printer,** and **File** (Figure 42). **Generate** allows you to create a report from the scenario you previously generated. With the **Screen** menu, the user can view on-screen the generated report. The **Printer** selection provides for output of the report to a printer. The **File** selection supports the output of the generated report to a text file.

The GloED report generator supports 5 of the 14 report formats listed in the list box. These report formats are:

1. National Data Summary Report
2. Sector Summary Report
3. Global National Emission Distribution Report
4. Global Sector Emission Distribution Report
5. National Sector Emission Distribution Report

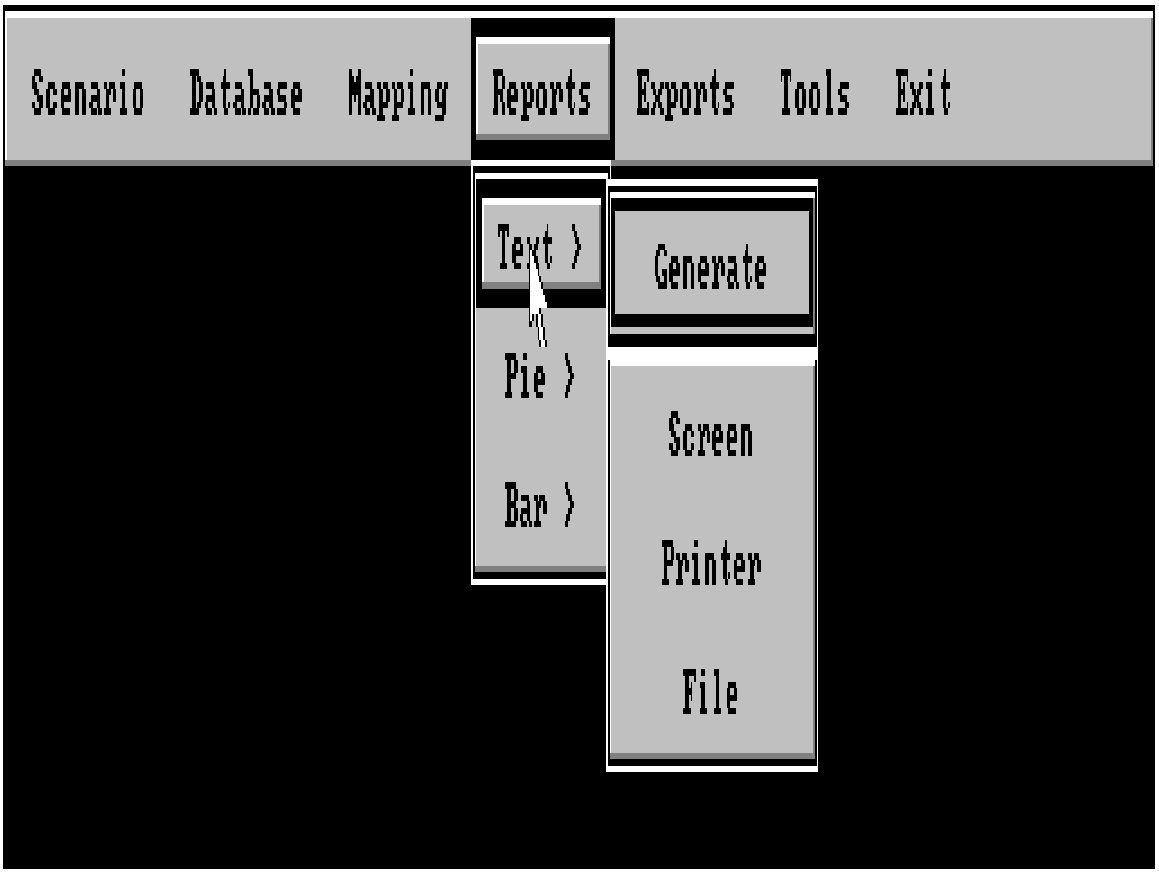

Figure 42. Reports Right-Side Pull-Down Menu

A brief description and examples of the five reports are presented in Appendix F.

Generating a Text Report--An Example

■ To generate a text report, follow these steps.

1 Select **Generate** and the **"GHG Report Generator"** dialog box will appear (Figure 43). This dialog box contains a list box that lists the types of report formats that are currently available and others that will be available in future versions. The report formats differ in how the information in the report is prioritized and sorted.

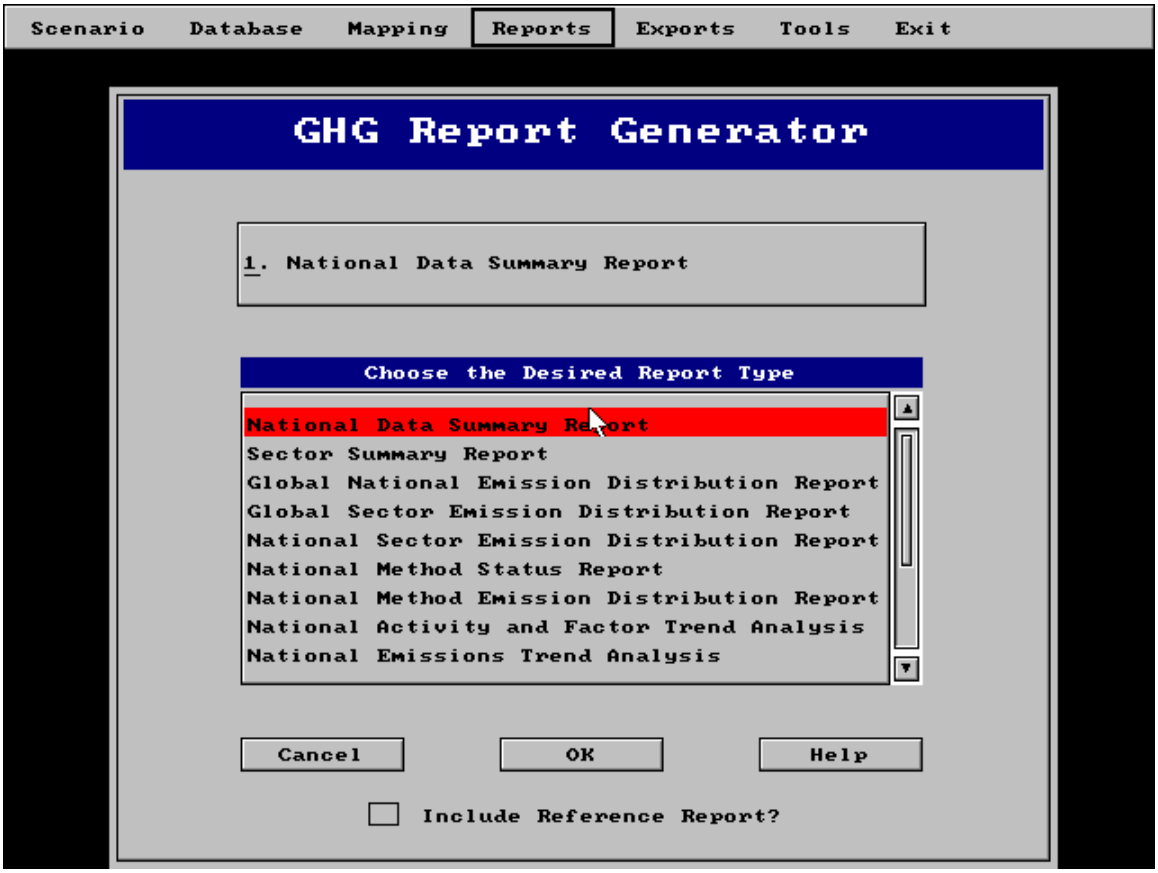

Figure 43. Report Generator Dialog Box

2 Select the **[NATIONAL DATA SUMMARY REPORT]** from the list box.

3 Select **[OK]**.

A message will appear indicating that GloED is generating the report (Figure 44). This could take as long as 2 hours to generate.

.

☞ ***If you do not wish to continue once you have begun generating a report, select the [ABORT] button on the screen.***

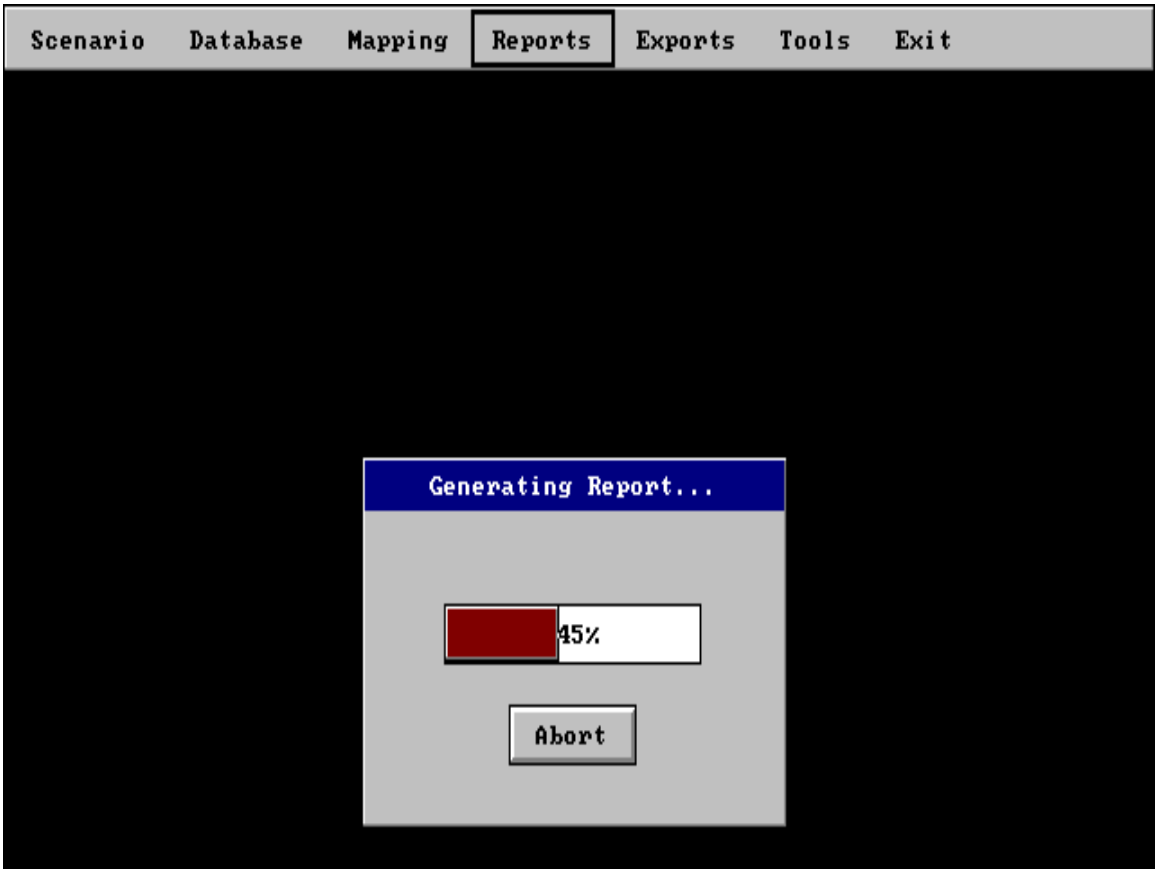

Figure 44. Report Generation Status Message Box

Viewing the Report On the Screen

After you have generated your report, you can view it on the screen by selecting **Report/Text/Screen** (Figure 45).

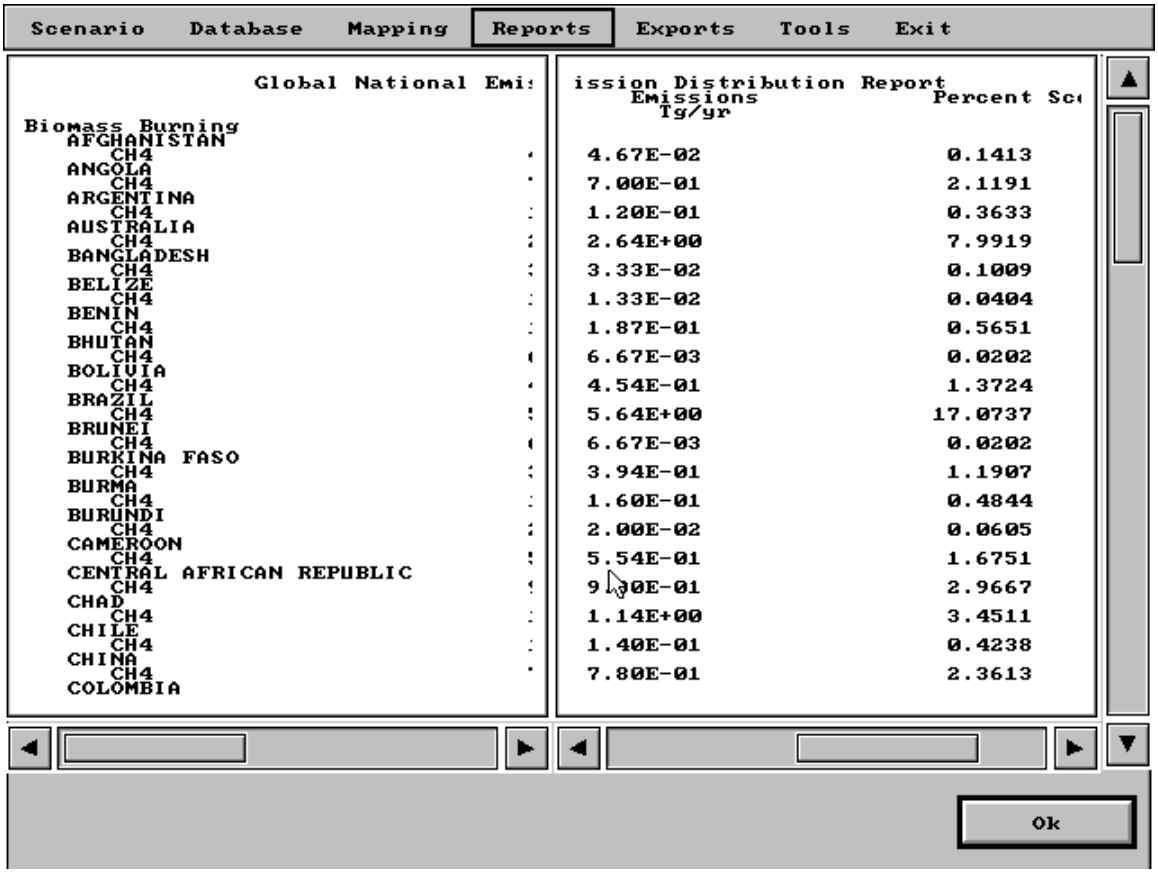

Figure 45. On-screen Report Browser

Printing the Report

After you have generated your report, you can print it by selecting **Report/Text/ Printer** . This allows you to select the output port to which your printer is attached (Figure 46).

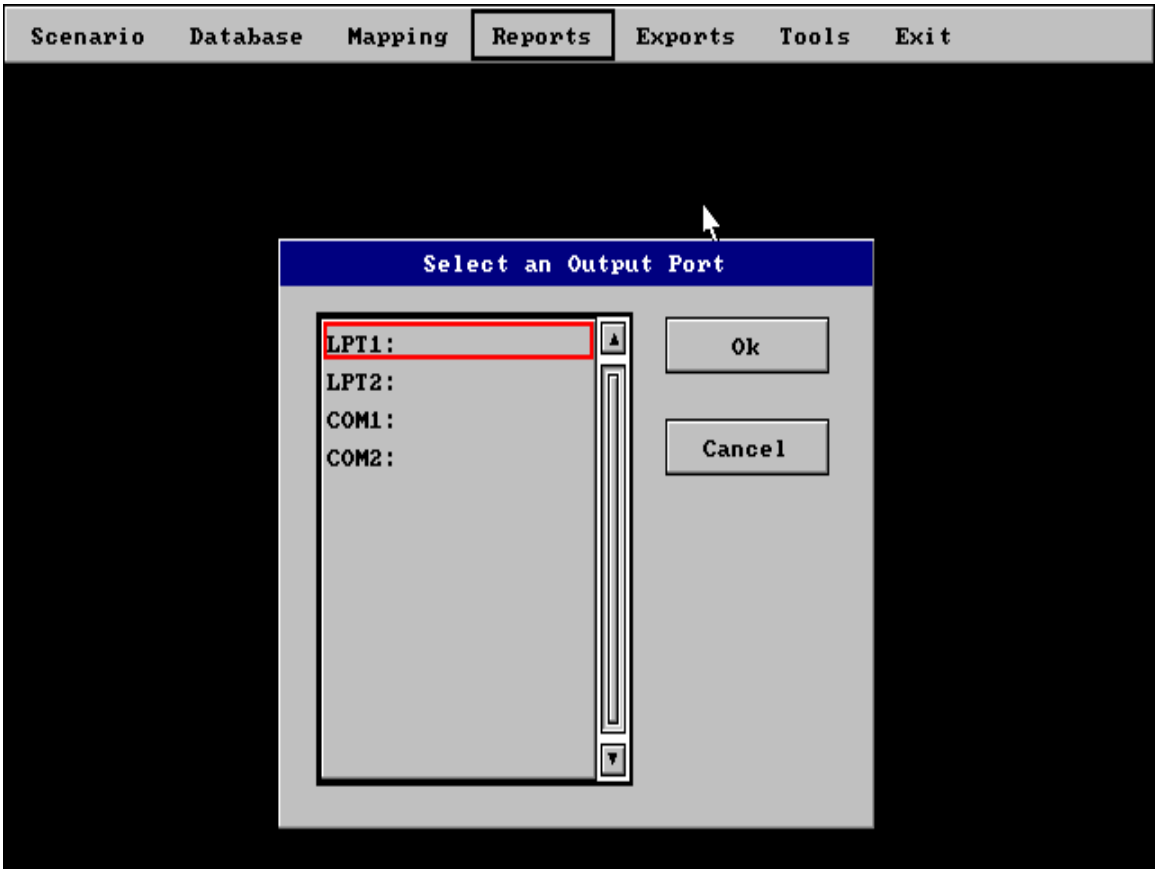

Figure 46. Select An Output Port

Exporting the Report to a File

After you have generated your report, you can save it to a text file by selecting **Report/Text/File**. This allows you to select a directory and enter a filename for the export output file (Figure 47).

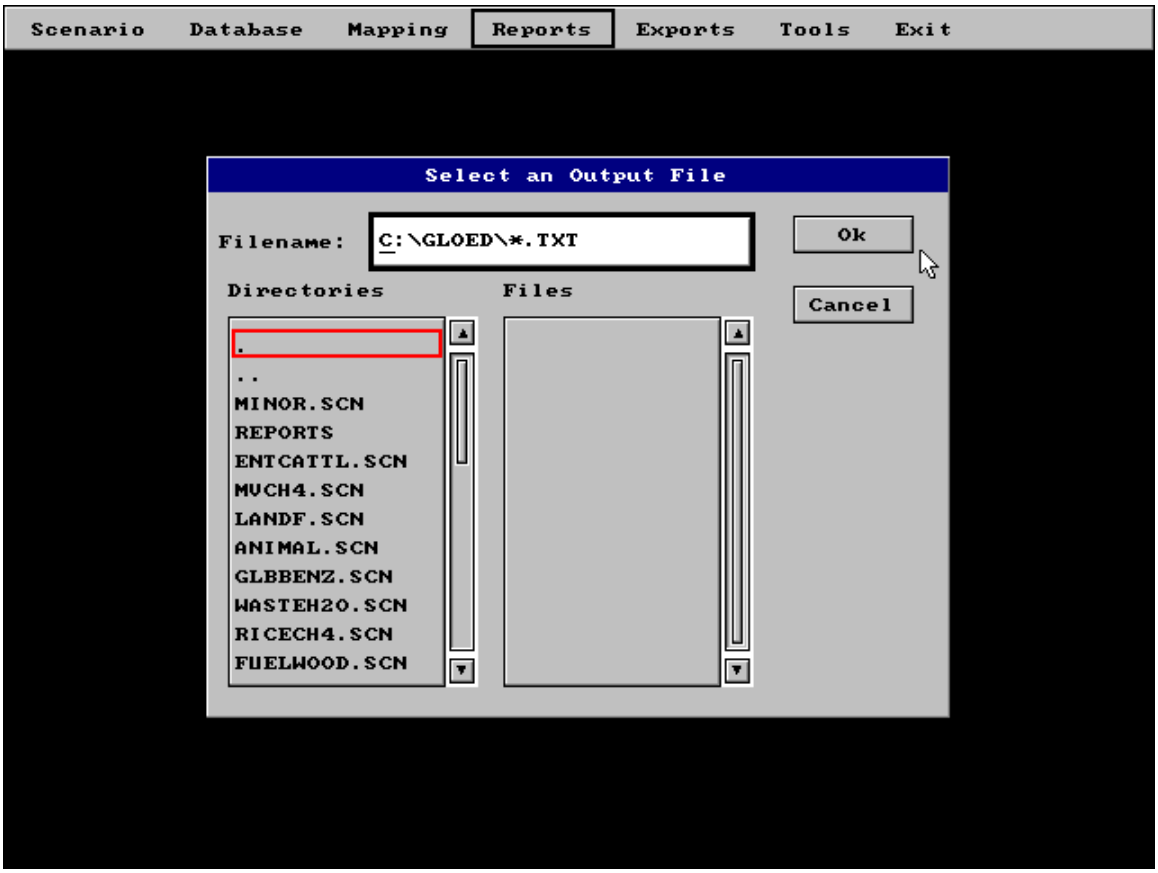

Figure 47. Select An Output Directory and Filename for Report

Generating a Pie Chart

A pull-down menu under **Reports/Pie** offers the following options: **Screen, Printer,** and **PCX File**. For this application, **Screen** allows you to name your pie chart through the **"Title Entry"** dialog box, and then creates a color-coded pie chart based on your previously generated scenario (Figure 48). With the **Printer** option, you can print your pie chart, and with the **PCX File** option, you can save your pie chart to a PCX graphics file.

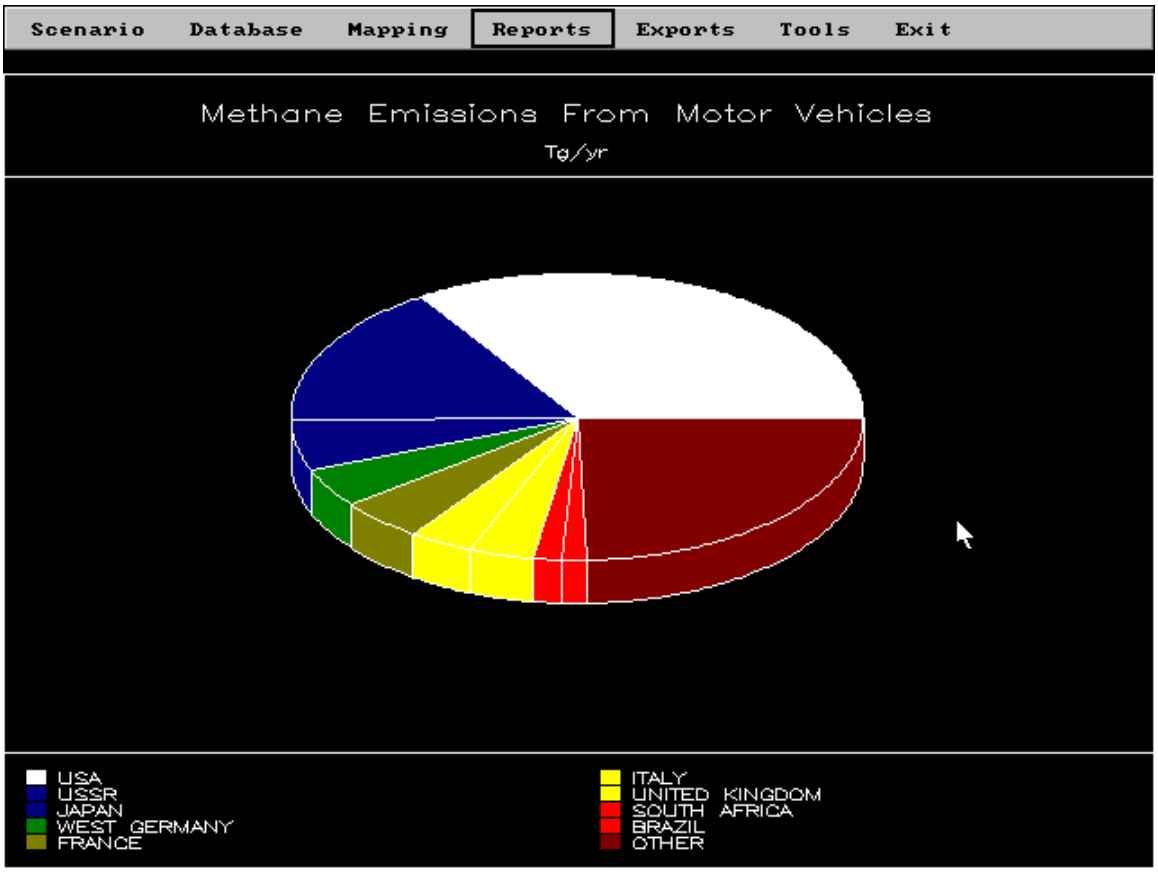

Figure 48. Pie Chart

Generating a Pie Chart--An Example

■ To generate a pie chart, follow these steps.

1 Select **Reports/Pie/Screen** from the **Main Menu**. The **"Title Entry"** dialog box will appear.

2 Select the **Title 1** text box and type in the name of the pie chart. For this example, type ***Methane Emissions from Motor Vehicles for all Countries***, which is the name assigned when mapping the scenario. Notice that the units you specified (Tg/yr) appear in the **Title 2** box.

3 Select **[OK].**

A pie chart will be generated showing methane emissions from motor vehicles worldwide.

Generating a Bar Chart

A pull-down menu under **Reports/Bar** offers the following options: **Screen, Printer,** and **PCX File**. For this application, **Screen** allows you to name your bar chart through the **"Title Entry"** dialog box, and then creates a color-coded bar chart based on your previously generated scenario (Figure 49). With the **Printer** option, you can print your bar chart, and with the **PCX File** option, you can save your bar chart to a PCX graphics file.

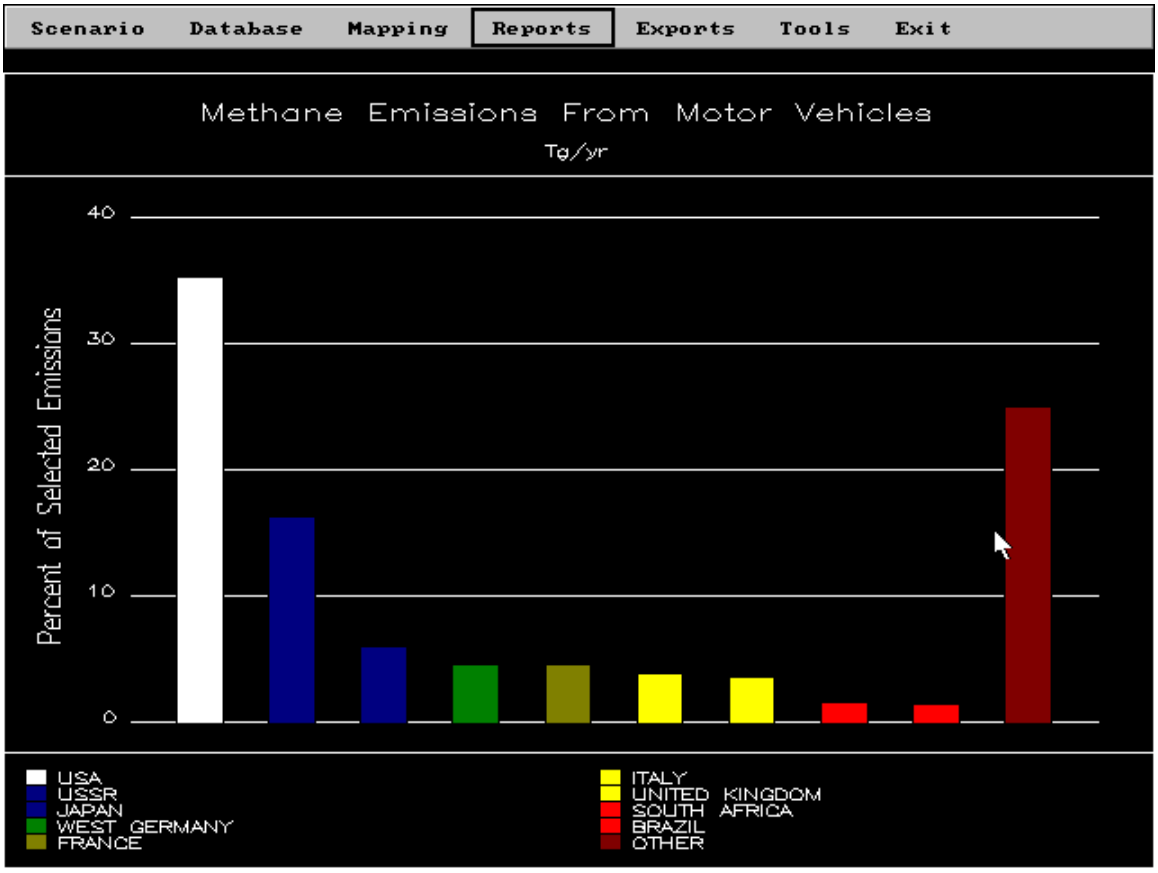

Figure 49. Bar Chart

Generating a Bar Chart--An Example

■ To generate a bar chart, follow these steps.

1 Select **Reports/Bar/Screen** from the **Main Menu**. The **"Title Entry"** dialog box will appear.

2 Select the **Title 1** text box and type in the name of the bar chart. For this example, type ***Methane Emissions from Motor Vehicles for all Countries***, which is the name assigned when mapping the scenario. Notice that the units you specified (Tg/yr) appear in the **Title 2** box.

3 Select **[OK].**

A bar chart will be generated showing percent of methane emissions from motor vehicles worldwide.

EXPORTS

If you want to save the tabular results of your emissions inventory, you can do so with the **Exports** option on the **Main Menu**. When **Exports** is selected from the **Main Menu**, a pull-down menu appears giving you the option of saving the report in Lotus 1-2-3, dBASE III, or ASCII format (Figure 50). When one of these is selected, a dialog box appears allowing you to select the name of the scenario (**"Filename"** text box) and directory where you want the file saved (Figure 51). Make sure the file extension is correct. Select **[OK]** to export the file. A GloED message box indicating completion status will appear. When it is completed, you will be able to retrieve the file in the software format for which you have exported it.

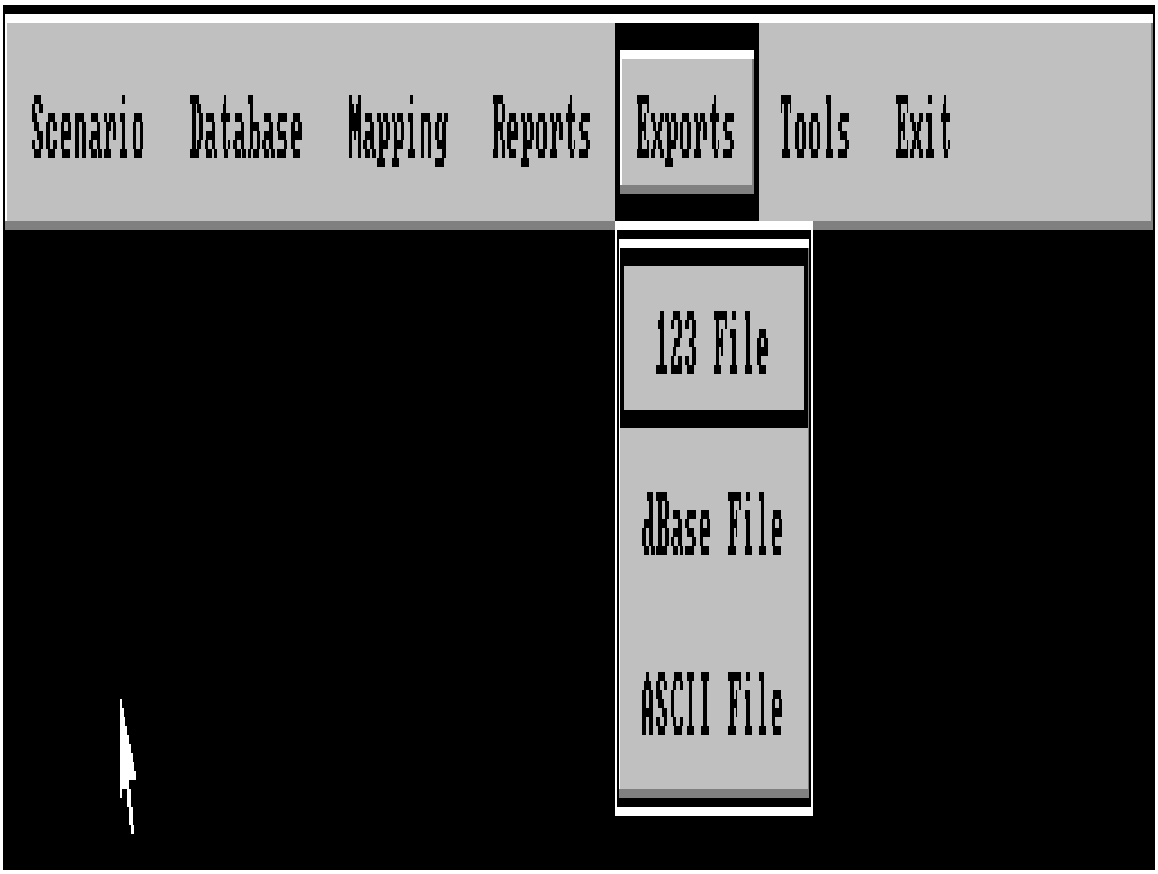

Figure 50. Exports Pull-Down Menu

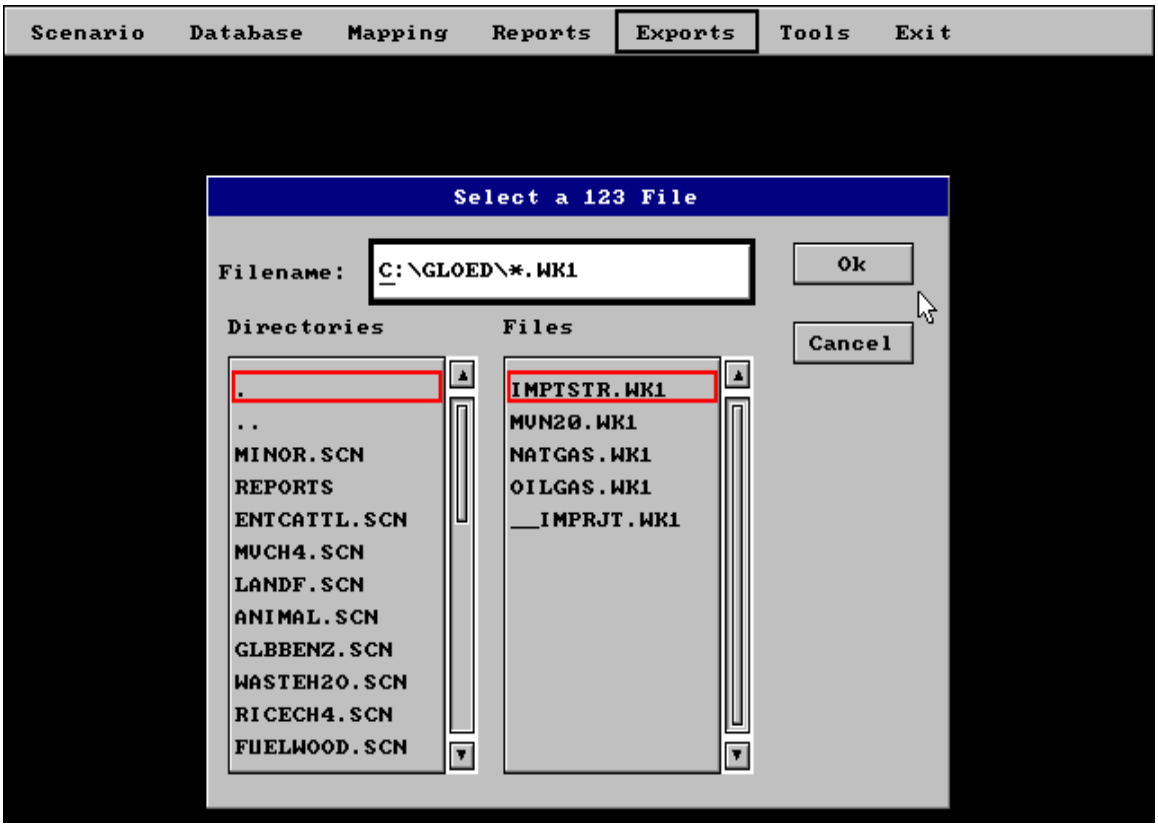

Figure 51. Select an Output Directory and Filename for Export

Exporting a Report--An Example

■ To export a report to a Lotus 1-2-3 file, follow these steps.

1 Select **Exports/123 File**.

2 Select **EXAMPLE.SCN** from the list box. The name appearing in the **Filename** box will be **C:\GLOED\EXAMPLE.SCN*.WK.**

3 Enter the export filename in the filename text box.

☞ ***NOTE: For instance, the example.wk1 file will be saved in the C:\gloed\example.scn directory with the filename example.wk1.***

---

4 Select **[OK]**.

TOOLS

Select **Tools** from the **Main Menu** and a pull-down menu will appear with the following options: **Units Converter** and **Lotus Importer** (Figure 52). The **Unit Conversion Utility** dialog box allows you to type in the existing unit and then type in the unit you want it to be converted to (Figure 53). When **[CONVERT]** is selected, the **Multiply By** field is automatically filled in.

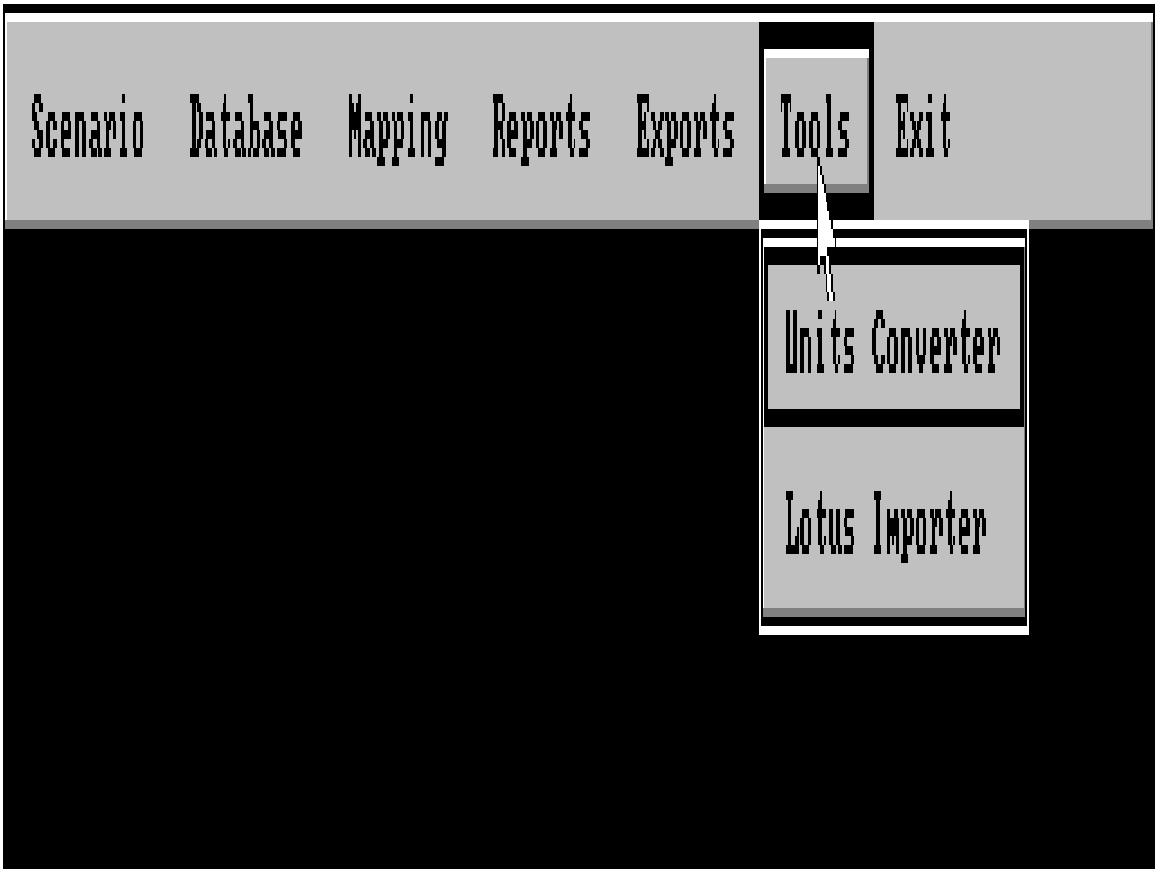

Figure 52. Tools Pull-Down Menu

Figure 53. Unit Conversion Utility

A Lotus 1-2-3 spreadsheet can be imported by selecting **Lotus Importer** from the **Tools** pull-down menu (see Figure 52). The **"Select a 123 File to Import"** dialog box will appear (Figure 54) to allow you to select the Lotus 1-2-3 file that you want to import. A **Dataset Entry** dialog box will appear (Figure 55) to allow you to create a new dataset (see Appendix G for details on creating a new dataset). An **Import References and Notes** dialog box will also appear (Figure 56), giving you the opportunity to enter citations (Figure 57) and notes (Figure 58). (See Appendix E for details on the **Lotus Importer**.)

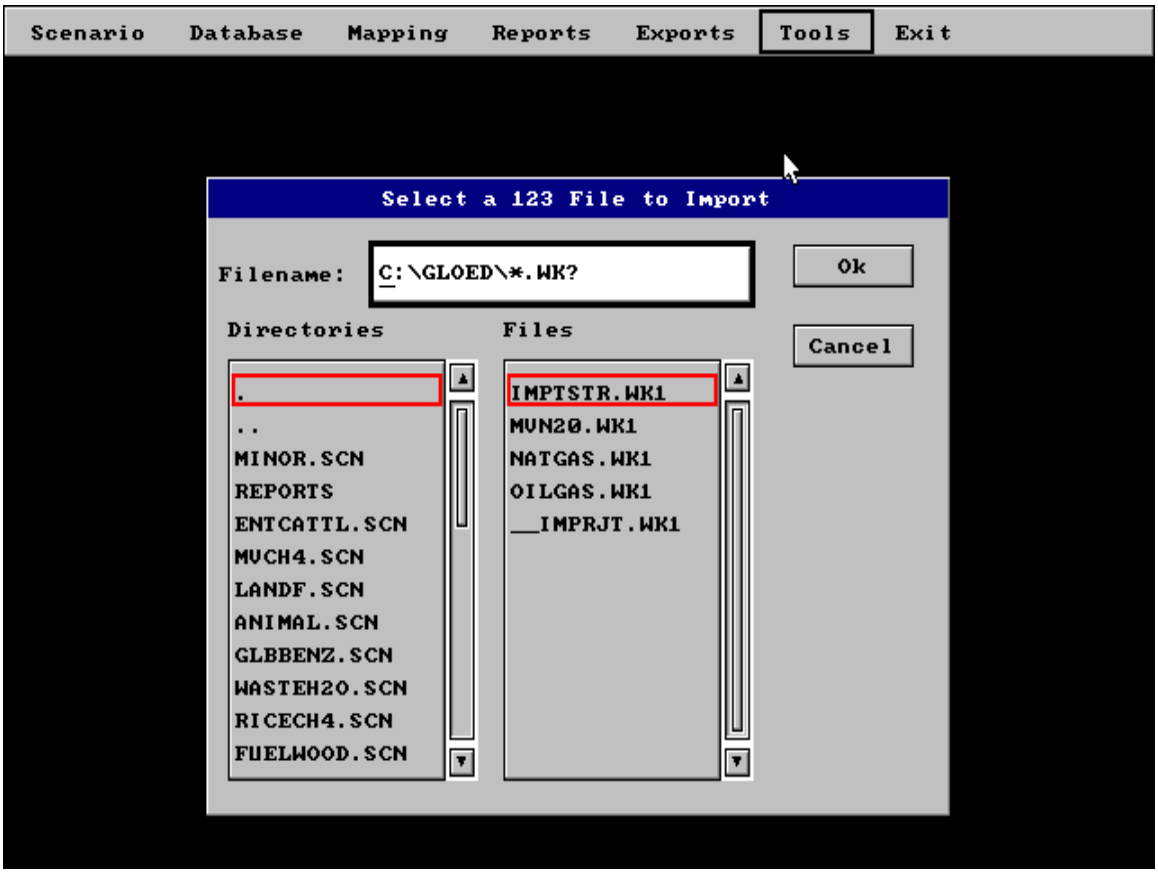

Figure 54. Select a 1-2-3 Format File to Import

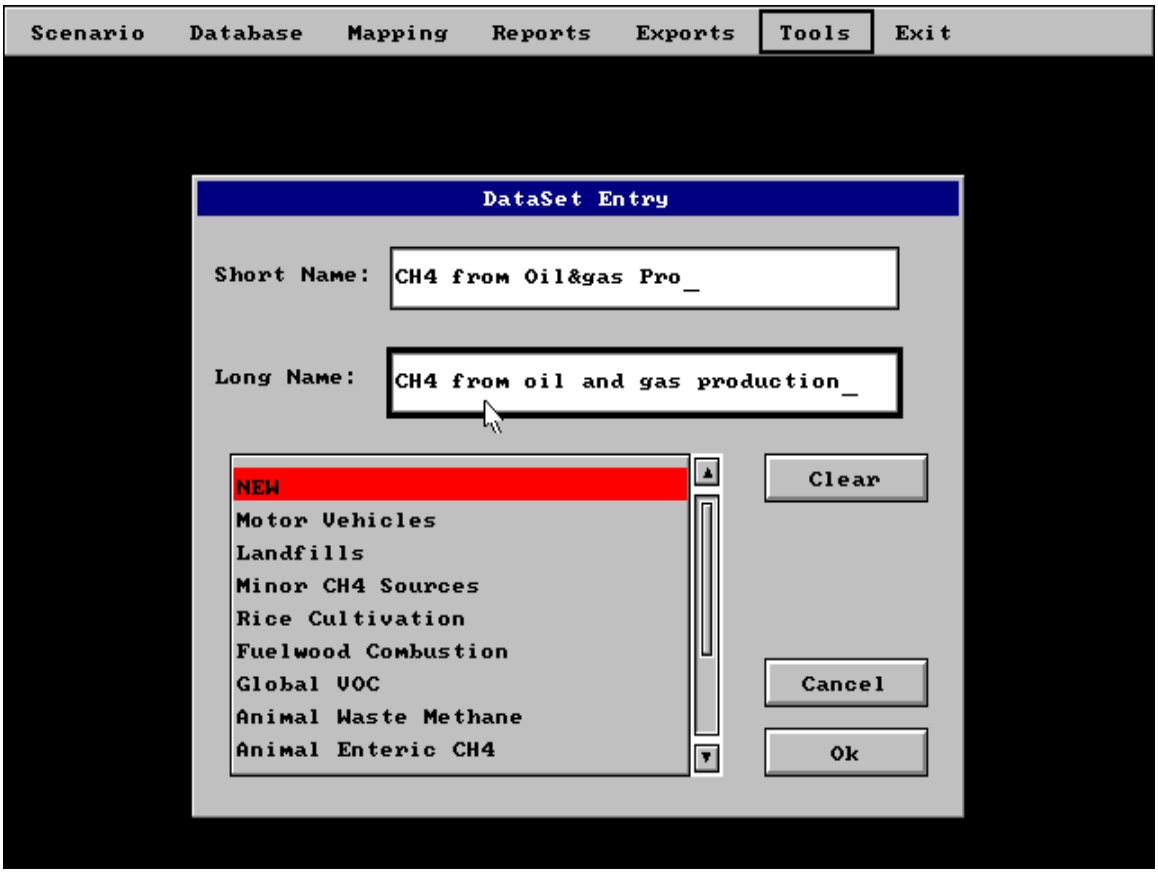

Figure 55. Import Dataset Information Entry

Figure 56. Import References and Notes

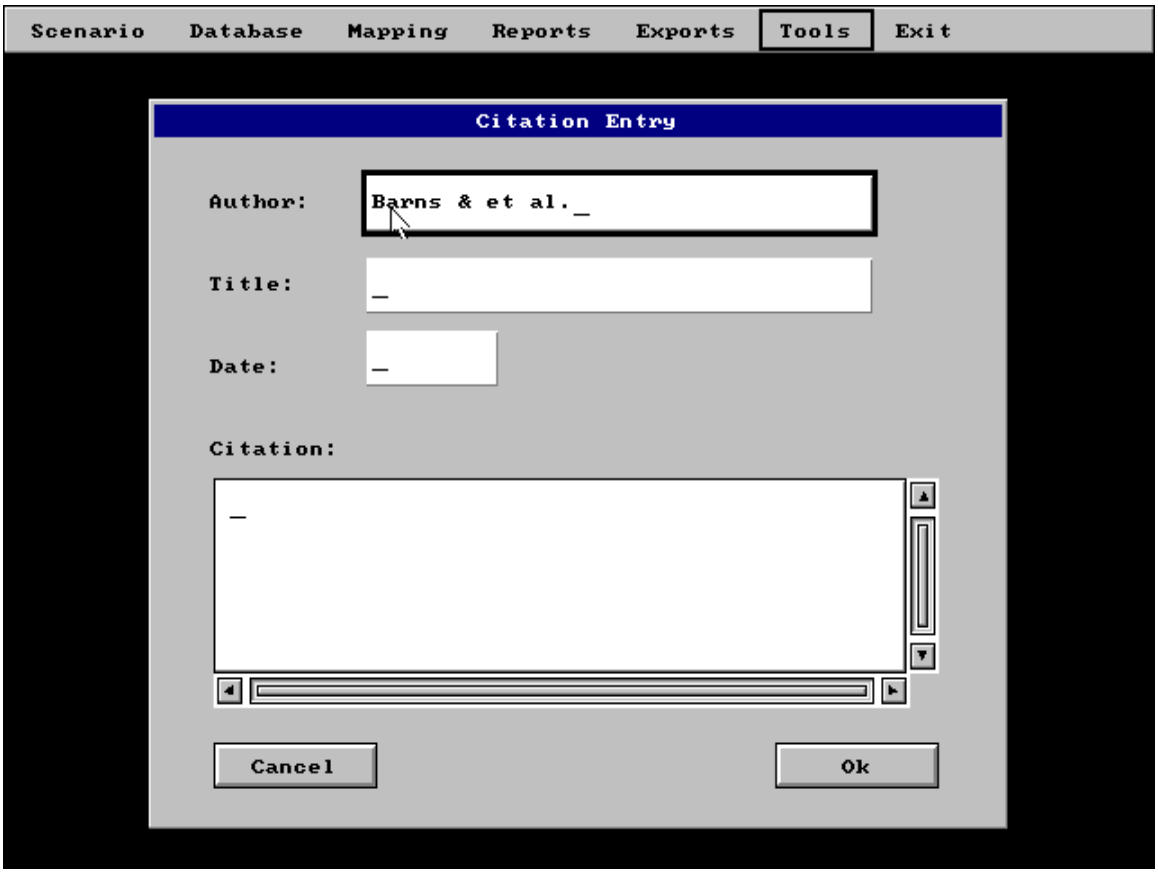

Figure 57. Import Citation Entry

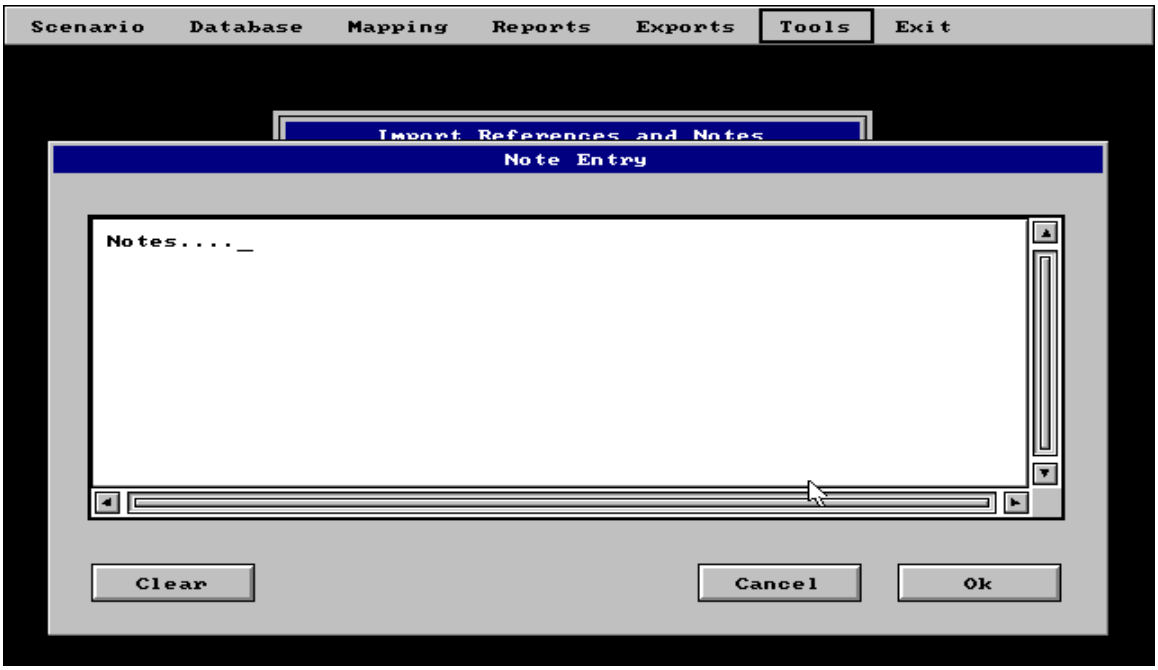

Figure 58. Import Notes Entry

EXIT

The **Exit** option on the **Main Menu** allows you to end the GloED program. Remember that the tutorial for this version of GloED operates from the actual program, and, therefore, if you alter any data records while using the tutorial, you should re-install the program from the original diskettes upon completion.

CHAPTER 4

This chapter presents detailed step-by-step examples of the process of developing complex GloED emissions scenarios using the GloED **Scenario Generate** and **Scenario Combine** features. The "Developing Global Estimates" section presents various issues related to the development of complex emissions scenarios. The "Example for Combining Scenarios Developed from Datasets with No Source Overlap" section describes a step-by-step generation of a scenario for global aggregate estimates based on scenarios with no source overlap. The "Example for Combining Scenarios Developed from Datasets with Source Overlap" section describes in similar detail, as before, the process of development of an emissions scenario with source overlap. The last section, "Using the Combine Facility for the Development of a Global Total Emissions Scenario," presents alternate approaches to the process of developing a combined scenario that involves data from multiple datasets as required for the assembly of a global scenario that includes all known sources of a greenhouse gas.

CONTENTS

DEVELOPING GLOBAL ESTIMATES

The development of global aggregate estimates based on multiple scenarios requires careful consideration. The GloED database, as distributed or as enhanced by a user, may contain, for example, more than one estimate for emissions from a given source category. For example, in the distribution version of the GloED database (Version 1), two datasets contain estimates for methane emissions from motor vehicles. The user can choose from one or the other, but when combining inventory scenarios, the user must be sure that no duplicates of source categories are present in the resulting combined inventory scenario.

To create global estimates for a particular source category and/or pollutant the user must generate an emissions scenario from each dataset that contains the source category and pollutant. In doing this the user should make sure that the same source category and pollutant has not been selected in more than one scenario being developed. The only way to ensure this is for the user to have detailed knowledge of the source categories present in the datasets. A description of the GloED datasets distributed with Version 1 can be found in Appendix C.

The development of more complex emission inventories requires more sophisticated approaches in the use of the scenario combine operation and the management of generated scenarios. Because the development, for example, of a global anthropogenic total for a particular greenhouse gas is a time consuming procedure, particular care should be taken in its development. The last section of this chapter describes recommended procedures for the user to follow. The development approaches outlined build on the two detailed scenario combination examples presented in the next two sections. The procedures described accomplish two things: first they serve as an introduction to the user on how to develop such estimates within GloED, and second they also introduce the user to other issues pertinent to the development of complex emission scenarios.

Before proceeding with the sections that explore step-by-step complex scenario development, it is useful to review the GloED concepts of datasets and inventory scenarios.

Datasets

The dataset is a group of inventory data with some feature, source category, study, or author in common. The data associated with a dataset can be emission estimates, or emissions factors and sector activities. A dataset can be a one-level source category scheme for a single country or multiple countries, or it can contain multiple source categories many levels deep for multiple countries and multiple pollutants. As described, a dataset is a flexible entity useful for the grouping of emissions inventory data with common attributes.

Inventory Scenarios

The inventory scenario is the main grouping for emissions inventories within GloED. Using GloED's scenario capability, a GloED user can combine data contained in GloED's database in a variety of ways. The individual user can enter new data and combine it with other data present in the GloED distribution database to generate new global estimates of any particular greenhouse gas for any source category. The inventory scenario can also serve as a "what if" tool for the comparison of "inventory scenarios" that might reflect different estimates, or levels of control, or changes in activity levels. For example, a user might choose to enter new data using the GloED Database Editor or the Lotus 1-2-3 data import facility and create a new dataset that might reflect some source categories, activity levels, and emission factors. The user could then modify the data in this dataset and create a new dataset. The modification might reflect a higher level of control. From these datasets, inventory scenarios can be generated and the overall effect of the emission factor reflects control differences that can be assessed by generating various GloED reports.

EXAMPLE FOR COMBINING SCENARIOS DEVELOPED FROM DATASETS WITH NO SOURCE OVERLAP

The following example involves the generation of a global estimate for methane emissions from cattle. This example involves the generation of two scenarios--one for the methane from cattle enteric emissions and the other for the methane from cattle wastes. These two scenarios are then combined to generate a global estimate for methane generated from cattle.

Generating a Cattle Enteric Emissions Inventory Scenario

1 Select **Scenario/Generate**.

2 Enter name for new scenario, such as ***Entcattl*.** Select **[OK].**

3 Select **Dataset/[CUSTOM]**.

4 Select **Dataset/Animal Enteric CH4.** Select **[OK]**.

5 Select **Sector/[CUSTOM]**.

6 Select **[CHILDREN]** three times (to bring us to the cattle beef and cattle dairy level).

7 Select **[Cattle Beef]**.

8 Select **[Cattle Dairy]**.

9 Select **[OK]**.

10 Select **[Units]**.

11 Enter ***Tg/yr*** in the units field.

12 Select **[Notes]**.

13 Select text box.

14 Enter scenario description, such as ***Enteric Cattle Methane Emissions***.

15 Select **[OK]**.

16 Select **[OK]** again.

Generating a Cattle Methane Waste Emissions Inventory Scenario

1 Select **Scenario/Generate**.

2 Enter name for new scenario, such as ***Wascattl***.

3 Select **Dataset/[CUSTOM]**.

4 Select **Dataset/Animal Waste Methane**.

5 Select **Sector/[CUSTOM]**.

6 Select **[CHILDREN]** three times (to bring us to the cattle beef and cattle dairy level).

7 Select **[Cattle Beef]**.

8 Select **[Cattle Dairy]**.

9 Select **[OK]**.

10 Select **Units**.

11 Enter ***Tg/yr*** in the units field.

12 Select **Notes**.

13 Select text box.

14 Enter scenario description, such as ***Waste Cattle Methane Emissions***.

15 Select **[OK]**.

16 Select **[OK]** again.

Note that in generating both of these scenario inventories, no selections were made for fuels, pollutant, or country. The dataset names indicate that these datasets only contain methane emissions, so no selection is required for pollutant; all countries are necessary for a global estimate; and these categories involve no fuel, therefore no selection was necessary in the fuel data.

These carefully developed scenarios can now be combined using the **Scenario/Combine** GloED function, which assembles the individual component scenarios into an aggregate global inventory scenario.

Combining Scenarios: the Cattle Enteric Emissions Inventory Scenario and the Cattle Methane Waste Emissions Inventory Scenario

1 Select **Scenario/Combine**.

2 Enter target name for combined scenario in text box, such as ***CH4cattl***.

3 Select **Entcattl**.

4 Select **Wascattl**.

5 Select **[OK]**.

6 Enter scenario description, such as ***Combined Scenario for Entcattl and Wascattl***.

7 Select **Units**.

8 Enter ***Tg/yr*** in the units field.

9 Select **[OK]**.

After the combined scenario has been generated, the user can view the result using the thematic mapping feature of GloED, by creating a pie chart, by creating a bar chart. The user can export the combined scenario to a Lotus 1-2-3 file. However, combined scenarios cannot be edited as other regular scenarios. At present, reports cannot be generated from the combined scenarios.

This combined scenario example was reasonably straightforward in that it involved combining two inventory scenarios developed from two datasets with no *overlap* in the source of emissions (i.e., sector/source category). Because GloED was designed to serve as a "data repository," it can hold datasets that might have different estimates for the same pollutant and emission source. The following example goes through the previous example step-by-step to show how a user can generate totals from scenario inventories generated from datasets that contained some overlap in the emissions source. The basic steps are the same in that two inventory scenarios are developed and then combined.

EXAMPLE FOR COMBINING SCENARIOS DEVELOPED FROM DATASETS WITH SOURCE OVERLAP

The generation of a combined scenario from two or more datasets with sources that overlap follows the same approach as the previous combine scenario example. First, two scenarios are developed from two different datasets. In one of the scenarios you explicitly exclude sources that you plan to include as part of the second scenario. Finally, as in the previous combined scenario example, the two emissions scenarios are combined.

Generating First Scenario from Minor Methane Sources, Excluding Motor Vehicles

1 Select **Scenario/Generate**.

2 Enter name of first scenario, such as ***Scen1***.

3 Select **[OK]**.

4 Select **Dataset/[CUSTOM].**

5 Select **Dataset/Minor CH4 Sources**.

6 Select **[OK]**.

7 Select **Sector/[CUSTOM]**.

8 Select **[ALL]**.

9 Deselect **TSDFs**.

10 Deselect **Refinery Emissions**.

11 Deselect **Petroleum Storage and Distribution**.

12 Deselect **Miscellaneous**.

13 Deselect **Mobile Sources.** Select **[OK].**

14 Select **Target Units**.

15 Enter ***Tg/yr***.

16 Select **[NOTES]**.

17 Select text box.

18 Enter a description, such as ***Methane Emissions from Combustion Sources in the Minor Methane Sources Dataset. EXCLUDING MOBILE SOURCES***.

We have excluded mobile sources because our intention is to use the mobile source data from another dataset.

19 Select **[OK]**.

20 Select **[OK]** again.

Generating Second Scenario from the Motor Vehicles Dataset

1 Select **Scenario/Generate**.

2 Enter name of scenario, such as ***Scen2***.

3 Select **[OK]**.

4 Select **Dataset/[CUSTOM]**.

5 Select **Dataset/Motor Vehicles**.

6 Select **[OK]**.

7 Select **Pollutant/[CUSTOM]**.

For this dataset, we are including all the countries and all the fuel types. However, this dataset contains data for several pollutants (i.e., NMVOCs, CH_4, N_2O, NO_x, CO_2, and CO). We need to select CH_4 so that CH_4 is the only pollutant in this scenario.

8 Select **CH4**.

9 Select **[OK]**.

10 Select **Target Units**.

11 Enter ***Tg/yr***.

12 Select **[NOTES]**.

13 Select the text box.

14 Enter a description, such as ***Methane Emissions from Motor Vehicles***.

15 Select **[OK]**.

As soon as the second scenario is generated they can then be combined.

Combining Scenarios: Minor Methane Sources (Excluding Motor Vehicles) Scenario and the Motor Vehicles Scenario

1 Select **Scenario/Combine**.

2 Enter a name for the target scenario in the text box, such as ***CBMINCH4***.

3 Select **Scen1** from the scroll box.

4 Select **Scen2** from the scroll box.

5 Select **[OK]**.

6 Enter scenario description, such as ***Combined Scenario for Minor Methane Sources (excluding motor vehicles) and Motor Vehicles***.

7 Select **Units**.

8 Enter ***Tg/yr*** in the units field.

9 Select **[OK]**.

USING THE COMBINE FACILITY FOR THE DEVELOPMENT OF A GLOBAL TOTAL EMISSIONS SCENARIO

The development of the global total emissions scenario that includes all known sources of a single greenhouse gas contains data from multiple datasets and involves similar steps to those in the previous section. The following steps are necessary:

1 Generation of individual scenarios representing a single sector, source category, or simply selected data from some dataset; and

2 Combination of the individual scenarios into a combined scenario.

These steps are similar to those presented in detail in the two previous sections. The combination of multiple scenarios containing data from multiple datasets produces a very complex emissions inventory scenario. As indicated, the generation of such a complex combined scenario requires significant care by the user.

The Development Process

The process to be described involves the incorporation of SELECTED data from 6 datasets to be assembled into a single scenario representing possibly a global total of a greenhouse gas. For purposes of the example, the generated scenarios of selected data from dataset ***ONE*** will be referred to as ***SCNONE***, for dataset ***TWO*** the scenario is named ***SCNTWO***, etc. Note that the number and naming of the datasets and scenarios are arbitrary and are only for purposes of explaining the development process.

It is extremely important that the user develops a "map" of the process previous to combining multiple scenarios. The multiple steps in this process are time-consuming steps, and the user can avoid having to repeat any of these steps by carefully planning the process. In particular, the user must be careful to avoid source OVERLAP when that can occur during the combine step. To avoid the problem of source overlap and the associated "double counting" of emissions, the user needs to understand clearly the sources included in the datasets being combined. The GloED system will warn the user

that it has detected what it considers a potential source overlap. However, since the GloED contains sets of source categories that are applicable only to that dataset, those categories will not produce the message. For those categories that are hierarchical, the warning message will indicate to the user that GloED has detected what appears to be an overlap.

The combining of multiple datasets can follow two basic approaches. One approach is to generate single dataset scenarios that contain selected data from the individual datasets. The generated scenarios are then combined to create the desired overall combined scenario. This approach is presented first. A modified approach is to generate the single dataset scenarios and combine related scenarios and end up with 2 or 3 combined scenarios. Following the generation of the combined scenarios, they are further combined into the desired global total. The second approach involves the extra step of generating several combined scenarios which are later themselves combined into an overall scenario. The particular advantage of this approach is that it provides different partial aggregations of sources in the intermediate combined scenarios that can be useful to the user when producing reports, graphics, or maps. For example, the combination of animal enteric methane emissions and animal waste methane emissions scenarios can be used to generate distribution reports for this subtotal of the methane global total associated with domesticated animals.

First Approach

Generate Steps

The first major step requires the use of the **Scenario/Generate** to develop multiple scenarios containing selected data (source categories) from individual datasets. The selection of data from the individual datasets must NOT include duplicate sources.

1 Generate ***SCNONE*** from selected data in dataset ***ONE***.

2 Generate ***SCNTWO*** from selected data in dataset ***TWO***.

3 Generate ***SCNTHREE*** from selected data in dataset ***THREE***.

4 Generate ***SCNFOUR*** from selected data in dataset ***FOUR***.

5 Generate ***SCNFIVE*** from selected data in dataset ***FIVE***.

6 Generate ***SCNSIX*** from selected data in dataset ***SIX***.

Combine Step

1 Combine the six scenarios (***SCNONE***, ***SCNTWO***, ***SCNTHREE***, ***SCNFOUR***, ***SCNFIVE***, and ***SCNSIX***) using **Scenario/Combine**.

The combined scenario contains all the data selections from the multiple datasets from which the multiple scenarios were generated.

Second Approach

Generate Steps

As in the previous approach, single dataset scenarios containing selected data from the various datasets are generated to start the process.

1 Generate ***SCNONE*** from selected data in dataset ***ONE***.

2 Generate ***SCNTWO*** from selected data in dataset ***TWO***.

3 Generate ***SCNTHREE*** from selected data in dataset ***THREE***.

4 Generate ***SCNFOUR*** from selected data in dataset ***FOUR***.

5 Generate ***SCNFIVE*** from selected data in dataset ***FIVE***.

6 Generate ***SCNSIX*** from selected data in dataset ***SIX***.

Intermediate Combine Steps

The intermediate steps involve using the **Scenario/Combine** feature of GloED to develop two combined scenarios. This approach affords additional flexibility and can be very useful to the user.

1 Combine ***SCNONE***, ***SCNTWO,*** and ***SCNTHREE*** into ***SCNINT1*** using **Scenario/Combine**.

2 Combine ***SCNFOUR***, ***SCNFIVE***, and ***SCNSIX*** into ***SCNINT2*** using **Scenario/Combine**.

The intermediate combined scenarios can be loaded into GloED to generate reports, maps, or exported files. These intermediate scenarios provide levels of disaggregation details that will not be available from the overall combined scenario to be created in the final combine step.

Final Combine Step

In this final combine step, the intermediate scenarios are combined to generate the desired global total emissions inventory scenario.

1 Combine the two intermediate scenarios ***SCNINT1*** and ***SCNINT2*** into a new scenario, i.e., ***GBLTOTAL*** using **Scenario/Combine**.

As before, the overall combined scenario contains all the data selections from the multiple datasets from which the original multiple scenarios were generated.

..

You have completed all the main functions in GloED. Select Exit from the Main Menu. You may want to re-install GloED from the original diskettes before using the program because the original GloED database has been modified during the tutorial.